HITACHI
Inspire the Next

SERVICE MANUAL

NTSC

DP45
Chassis

PA

No. 0194

51F710	DP45
57F710	DP45
65F710	DP45

R/C: CLU-4341UG2
(HL02071)

This addendum includes all information necessary for the 51F710, 57F710 and 65F710 except information that is the same as the 51S715 and 57S715. Please refer toService Manual PA No. 0186 when servicing model 51F710, 57F710 and 65F710.

CONTENTS

The electrical and mechanical parts lists parts that are different from Service Manual PA No. 0186.

ELECTRICAL PARTS DIFFERENCE 2
SERVICE ADJUSTMENTS....................3

51" / 57" EXPLODED VIEW DRAWING 26
51" / 57" EXPLODED VIEW PARTS LIST....................28 updated 12/15/05
65" EXPLODED VIEW DRAWING ....32 updated 07/15/05
65" EXPLODED VIEW PARTS LIST....................34 updated 12/15/05
CABINET SEPARATION INSTRUCTIONS 36
PWB Parts List ....38 Added 5/3/05

CAUTION: These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

SAFETY NOTICE
USE ISOLATION TRANSFORMER WHEN SERVICING

Components having special safety characteristics are identified by a ⚠ on the schematics and on the parts list in this Service Data and its supplements and bulletins. Before servicing the chassis, it is important that the service technician read and follow the "Important Safety Instructions" in this Service Manual.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

PROJECTION TELEVISION

SEPTEMBER 2004 HHEA-MANUFACTURING DIVISION
Version 0194.3

HITACHI

Inspire the Next

SERVICE MANUAL

NTSC

DP47 Chassis

PA

No. 0186

51S715 DP47
57S715 DP47

R/C: CLU-3842WL

TO GO TO A CHAPTER, CLICK ON ITS HEADING BELOW

CONTENTS

IMPORTANT SAFETY INSTRUCTIONS 2
SERVICING PRECAUTIONS 6
TECHNICAL CAUTIONS 11
SPECIFICATIONS 13
GENERAL INFORMATION 14
CUSTOMIZED PICTURE AND SOUND ADJUSTMENTS 19
DISPLAY PICTURE FORMATS 29
SERVICE ADJUSTMENTS .... 31 updated 02/13/07
PROTECTION CIRCUIT BLOCK DIAGRAM 83
TROUBLESHOOTING FLOW CHART 84
DC VOLTAGE TABLES 90
WAVEFORMS 104
CIRCUIT SCHEMATIC DIAGRAM 114
PRINTED CIRCUIT BOARDS 129
BLOCK DIAGRAM 148
WIRING DIAGRAM 149
CHASSIS WIRING DIAGRAM 150
EXPLODED VIEW 152
EXPLODED VIEW PARTS LIST 154
REPLACEMENT PARTS LIST .... 156 updated 10/06/05
QUICK REFERENCE PARTS LIST (IC & UNIT) 179
DISASSEMBLY INSTRUCTIONS 182
PWB PARTS LIST .... 183 Updated 3/18/05

CAUTION: These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Before servicing this chassis, it is important that the service technician read the “IMPORTANT SAFETY INSTRUCTIONS” in this service manual.

SAFETY NOTICE
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SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

PROJECTION COLOR TELEVISION

APRIL 2004 **HHEA-MANUFACTURING DIVISION**

Version 0186.4

IMPORTANT SAFETY INSTRUCTIONS
USE ISOLATION TRANSFORMER WHEN SERVICING

Components having special safety characteristics are identified by a ⚠on the schematics and on the parts list in this service manual and its supplements and bulletins. Before servicing this chassis, it is important that the service technician read and follow the “Important Safety Instructions” in this Service Manual.

For continued X-Radiation protection, replace picture tube with original type or Hitachi approved equivalent type.

This Service Manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead. Dispose of this product in accordance with applicable environmental laws. For product recycling and disposal information, contact you local government agency or the Electronic Industries Alliance at www.eiae.org (in the US) or the Electronic Product Stewardship Canada at www.epsc.ca (in Canada). For more information, call “1-800-HITACHI.

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health and Safety Code, Section 25249.5).

When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with solder. Also, when soldering do not inhale any smoke or fumes produced.

This television receiver provides display of television closed captioning in accordance with section 15.119 of the FCC rules.

Do not place any objects on the top of the television which may fall or cause a child to climb to retrieve the objects.

Projection TV’s are heavy and can mark or damage floor surfaces (especially wood flooring) if moved improperly. Do not slide or force TV into position. Always roll TV allowing casters at bottom of unit to help steep and position the TV.

PREVENTION OF SCREEN BURN

This wide screen TV is designed to display wide screen pictures. Images hould be viewed mostly in wide screen format or zoomed to fit the screen with moving pictures. Use of side panels, top and bottom panels of standard picture formats should only be 15% of your total viewing time to prevent uneven aging of the phosphors. Phosphors in the lighted area of the picture will age more rapidly than the gray areas. Continuous on-screen displays such as video games, stock market quotations, computer generated grphics, and other fixed (non-moving) patters can cause permanent damage to television receivers. Such “SCREEN BURNS” constitute misuse and are NOT COVERED by your HITACHI Factory Warranty.

PUBLIC VIEWING OF COPYRIGHTED MATERIAL

Pulic viewing of programs broadcast by TV stations and cable companies, as well as prgrams from other sources, may require prior authorization from the broadcaster or owner of the video program material.

This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited consumer uses only unless otherwise authorized by Mcrovision. Reverse engineering or disassembly is prohibited.

FEDERAL COMMUNICATIONS COMMISSION NOTICE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

This digital television is capable of receiving analog basic, digital basic and digital premium cable television programming by direct connection to a cable system providing such programming. A CableCARD provided by your cable operator is required to view encrypted digital programing. Certain advanced and interactive digital cable services such as video-on-demand, a cable operator’s enhanced program guide and data-enhanced television services may require the use of a set-top-box. For more information call your local cable company.

TABLE OF CONTENTS

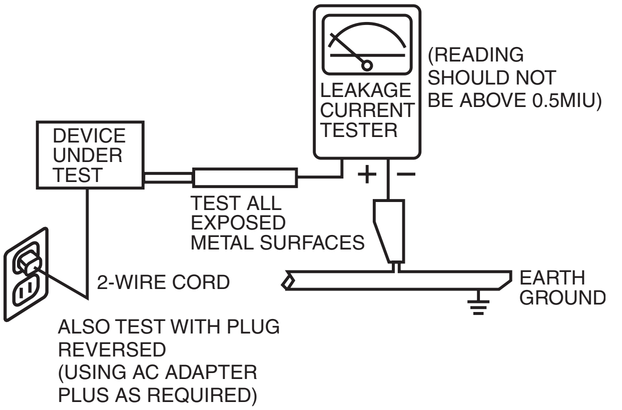
IMPORTANT SAFETY INSTRUCTION

1. Before returning an instrument to the customer, always make a safety check of the entire instrument, including but not limited to the following items.
   a. Be sure that no built-in protective devices are defective and/or have been deleted during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including but not limited to, nonmetallic control knobs, insulating fishpaper, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage.**

   b. Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to (1) spacing between the picture tube and cabinet mask, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.

   c. **Antenna Cold Check** – With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the on position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each tuner antenna input, exposed terminal screw and, if applicable, to the coaxial connector. If the measured resistance is less than 1.0 megohms or greater than 5.2 megohms, an abnormality exists that must be corrected before the instrument is returned to the customer. Repeat this test with the instrument AC switch in the off position.

   d. **Leakage Current Hot Check** – With the instrument completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.0 Leakage Current for Appliances and Underwriters Laboratories (UL) 6500, (9.1.1). With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal waterpipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle bracket, metal cabinet, screw heads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 MIU. Reverse the instrument power cord plug in the outlet and repeat test.


(READING SHOULD NOT BE ABOVE 0.5MIU)
LEAKAGE CURRENT TESTER
DEVICE UNDER TEST
+
–
TEST ALL EXPOSED METAL SURFACES
2-WIRE CORD
EARTH GROUND
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUS AS REQUIRED)

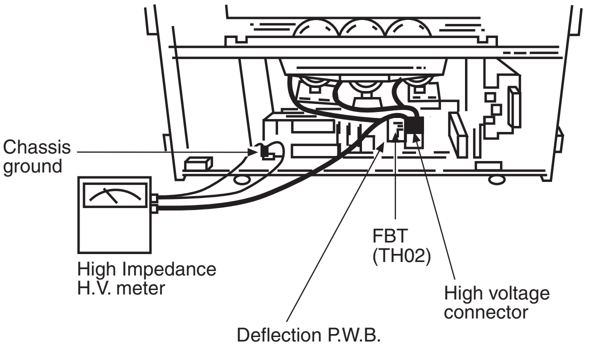
AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER OR BEFORE CONNECTING THE ANTENNA OR ACCESSORIES.

   e. **High Voltage –** This receiver is provided with a hold down circuit for clearly indicating that voltage has increased in excess of a predetermined value. Comply will all notes described in this Service Manual regarding this hold down circuit when servicing, so that this hold down circuit may correctly be operated.

   f. **Service Warning –** With maximum contrast, operating high voltage in this receiver is lower than **32.0 kV.** In case any component having influence on high voltage is replaced, confirm that the high voltage with maximum contrast is lower than **32.0 kV.**
   To measure H.V. use a high impedance H.V. meter. Connect (-) to chassis earth and (+) to the CRT anode button. (See the following connection diagram.)

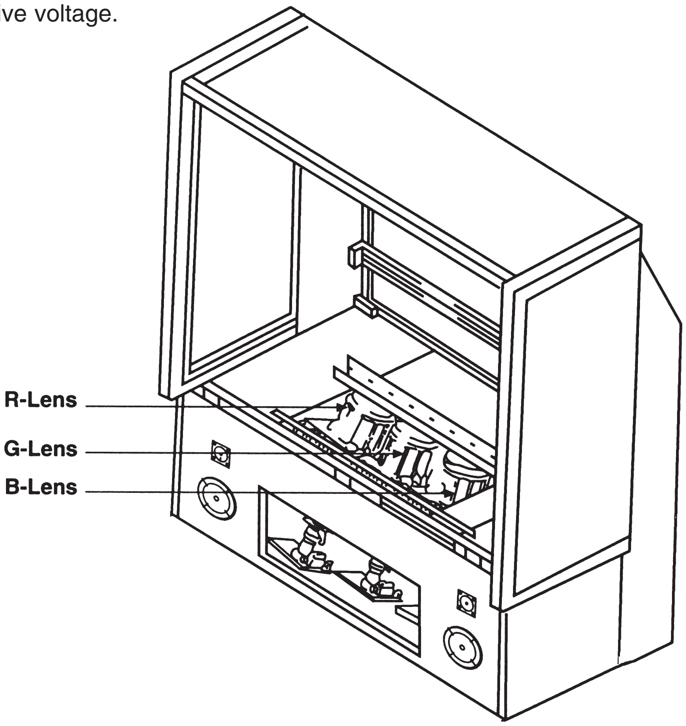
   Note: Turn power switch off without fail before the connection to the anode button is made.

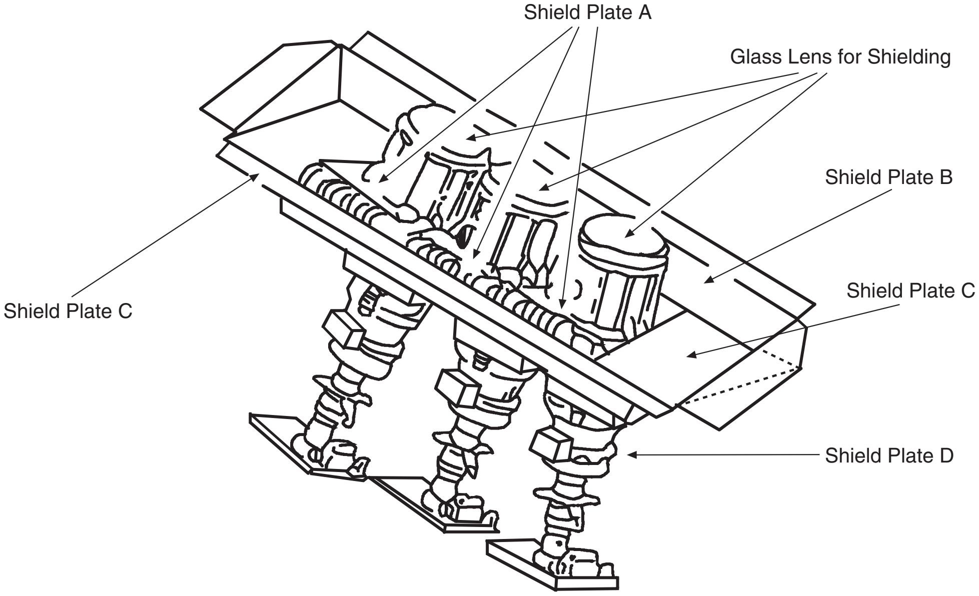


IMPORTANT SAFETY INSTRUCTIONS

g. **X-radiation – TUBE:** The primary source of X-radiation in this receiver is the picture tube. The tube utilized for the above mentioned function in this chassis is specially constructed to limit X-radiation emissions.
For continued X-radiation protection, the replacement tube must be the same type as the original, Hitachi approved type.
When troubleshooting and making test measurements in a receiver with a problem of excessive high voltage, avoid being unnecessarily close to the picture tube and the high voltage component.
Do not operate the chassis longer than is necessary to locate the cause of excessive voltage.

h. **X-radiation Shield –**
1. This receiver is provided with X-ray shield plates for protection against X-radiation. Do not remove X-ray shield plates A, B, or C shown in Fig. 1 unnecessarily, when troubleshooting and/or making test measurements.
2. To prevent X-radiation, after replacement of picture tube and lens, confirm these components to be fixed correctly to bracket and cabinet, and not to be taken off easily.





Detailing X-radiation shield

Fig. 1. Installation of shield lens, shield cover and shield plates (oblique view).

IMPORTANT SAFETY INSTRUCTIONS

2. Read and comply with all caution and safety-related notes on or inside the receiver cabinet, on the receiver chassis, or on the picture tube.

3. **Design Alteration Warning** – Do not alter or add to the mechanical or electrical design of this TV receiver. Design alterations and additions including but not limited to circuit modifications and the addition of items such as auxiliary audio and/or video output connectors, might alter the safety characteristics of this receiver and create a hazard to the user. Any design alterations or additions may void the manufacturer's warranty and may make you, the servicer, responsible for personal injury or property damage resulting therefrom.

4. **Picture Tube Implosion Protection Warning** – The picture tube in this receiver employs integral implosion protection. For continued implosion protection, replace the picture tube only with one of the same type number. Do not remove, install, or otherwise handle the picture tube in any manner without first putting on shatterproof goggles equipped with side shields. People not so equipped must be kept safely away while picture tubes are handled. Keep the picture tube away from your body. Do not handle the picture tube by its neck.

5. **Hot Chassis Warning** – **a.** Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord and may be safely serviced without an isolation transformer only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC power source. Confirm that the AC power plug is inserted correctly with an AC voltmeter by measuring between the chassis and a known earth ground. If a voltage reading in excess of 1.0V is obtained, remove and reinsert the AC power plug in the opposite polarity and again measure the voltage potential between the chassis and a known earth ground. **b.** Some TV receiver chassis normally have 85V AC (RMS) between chassis and earth ground regardless of the AC plug polarity. These chassis can be safely serviced only with an isolation transformer inserted in the power line between the receiver and the AC power source, for both personnel and test equipment protection. c. Some TV receiver chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is not isolated from the AC power line. The two ground systems are electrically separated by insulating material that must not be defeated or altered.

6. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: **a.** near sharp edges, **b.** near thermally hot parts – be sure that leads and components do not touch thermally hot parts, **c.** the AC supply, **d.** high voltage and **e.** antenna wiring. Always inspect in all areas for pinched, out-of-plate, or frayed wiring. Do not change spacing between components and the printed circuit board. Check AC power cord for damage.

7. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

8. **PRODUCT SAFETY NOTICE** – Many TV electrical and mechanical parts have special safety-related characteristics some of which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified in Hitachi service data by shading on schematics and by a ⚠ in the parts list. Use of substitute replacement that does not have the same safety characteristics as the recommended replacement part in Hitachi service data parts list might create shock, fire, and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate. For the latest information, always consult the appropriate current Hitachi service literature. A subscription to, or additional copies of service literature may be obtained at a nominal charge from Hitachi.

SERVICING PRECAUTIONS

CAUTION: Before servicing instruments covered by this service data and its supplements and addenda, read and follow the “Important Safety Instructions” on page 3 of this publication.

NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Guidelines

1. Always unplug the instrument AC power cord from the AC power source before:
   a. Removing or reinstalling any component, circuit board, module, or any other instrument assembly.

   b. Disconnecting or reconnecting any instrument electrical plug or other electrical connection.

   c. Connecting a test substitute in parallel with an electrolytic capacitor in the instrument.
   CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

   d. Discharging the picture tube anode.

2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc.) equipped with a suitable high voltage probe. Do not test high voltage by “drawing an arc.” The H.V. Distribution Box has an internal 400MΩ resistor (bleeder resistor) connected from the high voltage to ground. After power is removed from the instrument the high voltage will discharge through the high voltage bleeder resistor. If the tubes have high voltage after power is removed, then the bleeder resistor is defective or the bleeder ground is disconnected.

3. Discharge the picture tube’s anode at any of the R, G, or B outputs on the H.V. Distribution Box only by (a) first connecting one end of an insulated clip lead to the degaussing or kine aquadag grounding system shield at the point where the picture tube socket ground lead is connected, and then (b) touch the other end of the insulated clip lead to the picture tube high voltage distribution box R, G, or B output, using an insulated handle to avoid personal contact with high voltage.

4. Do not spray chemicals on or near this instrument or any of its assemblies.

5. Unless specified otherwise in these service data, clean electrical contracts by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable nonabrasive applicator: 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength).
   CAUTION: This is a flammable mixture. Unless specified otherwise in these service data, lubrication of contacts is not required.

6. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service data might be equipped.

7. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat-sinks are correctly installed.

8. Always connect the test instrument ground lead to the appropriate instrument chassis ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.

9. Use with this instrument only the test fixtures specified in this service data.
   CAUTION: Do not connect the test fixture ground strap to any heatsink in this instrument.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor “chip” components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.

2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

3. Use only a grounded-tip soldering iron to solder or desolder ES devices.

4. Use only can anti-static type solder removal device. Some solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ES device.

5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.

6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material.)

7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

TABLE OF CONTENTS

SERVICING PRECAUTIONS

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range 500°F to 600°F.

2. Use an appropriate lead free solder (see page 10). Lead solder can be used, but there is a possibility of failure due to insufficient strength of the solder.

3. Keep the soldering iron tip clean and well-tinned.

4. Thoroughly clean the surfaces to be soldered. Use a small wire-bristle (0.5 inch or 1.25 cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.

5. Use the following desoldering technique.
   a. Allow the soldering iron tip to reach normal temperature (500°F to 600°F).

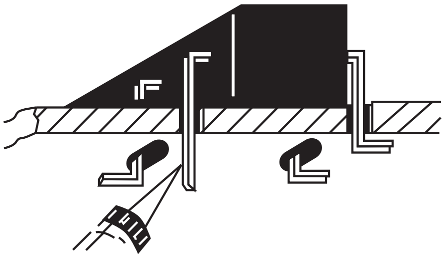
   b. Heat the component lead until the solder melts. Quickly draw away the melted solder with an anti-static, suction-type solder removal device or with solder braid.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil.

6. Use the following soldering technique.
   a. Allow the soldering iron tip to reach normal temperature (500°F to 600°F).

   b. First, hold the soldering iron tip and solder strand against the component lead until the solder melts.

   c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil or components.

   d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.



Use Solding Iron to Pry Leads

IC Removal/Replacement

Some Hitachi unitized chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

Removal

1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.

2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement

1. Carefully insert the replacement IC in the circuit board.

2. Carefully bend each IC lead against the circuit foil pad and solder it.

3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to areas.)

“Small-signal” Discrete Transistor Removal/Replacement

1. Remove the defective transistor by clipping its leads as close as possible to the component body.

2. Bend into a “U” shape the end of each of three leads remaining on the circuit board.

3. Bend into a “U” shape the replacement transistor leads.

4. Connect to replacement transistor leads to the corresponding leads extending from the circuit board and crimp the “U” with long nose pliers to insure metal to metal contact, then solder each connection.

Power Output Transistor Devices Removal/Replacements

1. Heat and remove all solder from around the transistor leads.

2. Remove the heatsink mounting screw (if so equipped).

3. Carefully remove the transistor from the circuit board.

4. Insert new transistor in circuit board.

5. Solder each transistor lead, and clip off excess lead.

6. Replace heatsink.

Diode Removal/Replacement

1. Remove defective diode by clipping its leads as close as possible to diode body.

2. Bend the two remaining leads perpendicularly to the circuit board.

3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.

4. Securely crimp each connection and solder it.

5. Inspect (on the circuit board copper side) the solder joints of the two “original leads”. If they are not shiny, reheat them and, if necessary, apply additional solder.

SERVICING PRECAUTIONS

Fuses and Conventional Resistor Removal/Replacement

1. Clip each fuse or resistor lead at top of circuit board hollow stake.

2. Securely crimp leads of replacement component around stake 1/8 inch from top.

3. Solder the connections.
   CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board, to prevent excessive component temperatures.

Circuit Board Foil Repair

Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board, causing the foil to separate from, or "lift-off," the board. The following guidelines and procedures should be followed whenever this condition is encountered.

In Critical Copper Pattern Areas

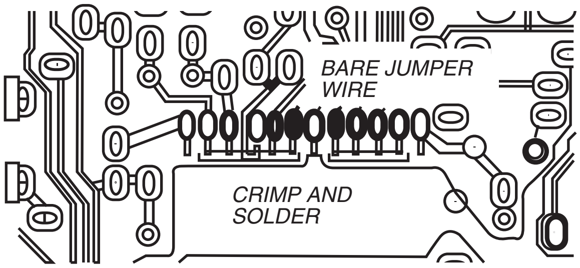
High component/copper pattern density and/or special voltage/current characteristics make the spacing and integrity of copper pattern in some circuit board areas more critical than in others. The circuit foil in these areas is designated as Critical Copper Pattern. Because Critical Copper Pattern requires special soldering techniques to ensure the maintenance of reliability and safety standards, contact your Hitachi personnel.

At IC Connections

To repair defective copper pattern at IC connections, use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections.)

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary.)

2. Carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.



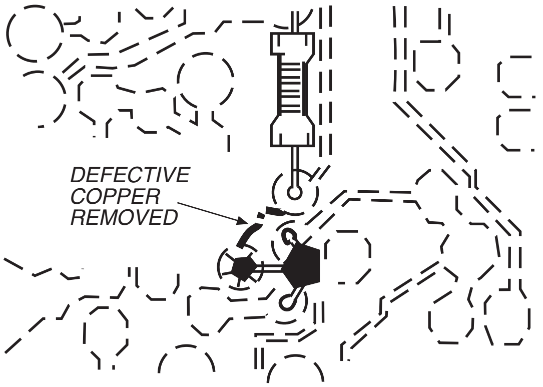
Install Jumper Wire and Solder

3. Bend a small "U" in one end of a small-gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.

4. Route the jumper wire along the path of the cut-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area, and clip off any excess jumper wire.

At Other Connections

Use the following technique to repair defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.



Insulated Jumper Wire

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure hazardous condition will not exist if the jumper wire opens.

2. Trace along the copper pattern from both wire sides of the pattern break and locate the nearest component directly connected to the affected copper pattern.

3. Connect insulated 20-gauge jumper wire from the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections.
   CAUTION: Be sure the insulated jumper wire is dressed so that it does not touch components or sharp edges.

Frequency Synthesis (FS) Tuning Systems

1. Always unplug the instrument AC power cord before disconnecting or reconnecting FS tuning system cables and before removing or inserting FS tuning system modules.

2. The FS tuner must never be disconnected from the FS tuning control module while power is applied to the instrument.

3. When troubleshooting intermittent problems that might be caused by defective cable connection(s) to the FS tuning system, remove the instrument AC power as soon as the defective connector is found and finish confirming the bad connection with a continuity test. This procedure will reduce the probability of electrical overstress of the FS system semi-conductor components.

SERVICING PRECAUTIONS

NOTE: ***These components are affixed with glue. Be careful not to break or damage any foil under the component or at the pins of the ICs when removing. Usually applying heat to the component for a short time while twisting with tweezers will break the component loose.***

Leadless Chip Components (surface mount)

Chip components must be replaced with identical chips due to critical foil track spacing. There are no holes in the board to mount standard transistors or diodes. Some chip capacitor or resistor board solder pads may have holes through the board, however the hole diameter limits standard resistor replacement to 1/8 watt. Standard capacitors may also be limited for the same reason. It is recommended that identical chip components be used. .

Chip resistors have a three digit numerical resistance code -1st and 2nd significant digits and a multiplier. Example: 162 = 1600 or 1.6KΩ resistor, 0 = 0Ω (jumper).

Chip capacitors generally do not have the value indicated on the capacitor. The color of the component indicates the general range of the capacitance.

Chip transistors are identified by a two letter code. The first letter indicates the type and the second letter, the grade of transistor.

Chip diodes have a two letter identification code as per the code chart and are a dual diode pack with either common anode or common cathode. Check the parts list for correct diode number.

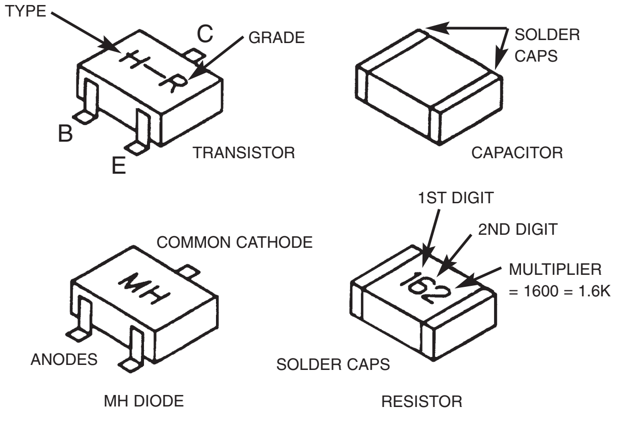
Component Removal

1. Use solder wick to remove solder from component end caps or terminals.
2. Without pulling up, carefully twist the component with tweezers to break the adhesive.
3. Do not reuse removed leadless or chip components since they are subject to stress fracture during removal .

Chip Component Installation

1. Put a small amount of solder on the board soldering pads.
2. Hold the chip component against the soldering pads with tweezers or with a miniature alligator clip and apply heat to the pad area with a 30 watt iron until solder flows. Do not apply heat for more than 3 seconds

Chip Components

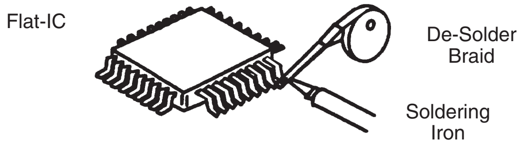

TYPE
C
GRADE
H–R
B
E
TRANSISTOR
SOLDER
CAPS
CAPACITOR
1ST DIGIT
2ND DIGIT
COMMON CATHODE
MH
MULTIPLIER
= 1600 = 1.6K
162
ANODES
SOLDER CAPS
MH DIODE
RESISTOR

How to Replace Flat-IC

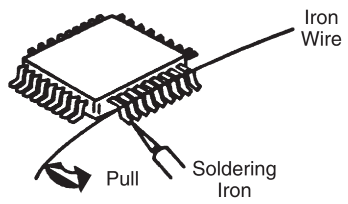
—Required Tools—

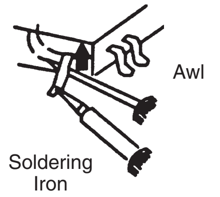
- Soldering iron
- De-solder braids
- iron wire or small awl
- Magnifier

1. Remove the solder from all of the pins of a Flat-IC by using a de-solder braid.

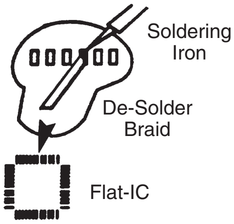

Flat-IC
De-Solder
Braid
Soldering
Iron

2. Put the iron wire under the pins of the Flat-IC and pull it in the direction indicated while heating the pins using a soldering iron. A small awl can be used instead of the iron wire.

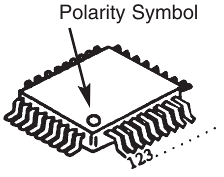

Iron
Wire
Pull
Soldering
Iron


Awl
Soldering
Iron

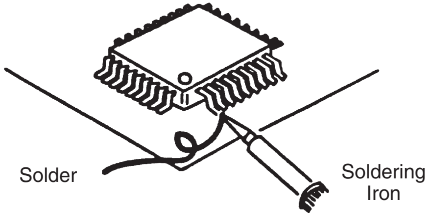
3. Remove the solder from all of the pads of the Fiat-IC by using a de-solder braid.


Soldering
Iron
De-Solder
Braid
Flat-IC

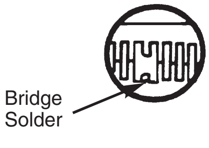
4. Position the new Flat-IC in place (apply the pins of the Flat-IC to the soldering pads where the pins need to be soldered). Properly determine the positions of the soldering pads and pins by correctly aligning the polarity symbol.

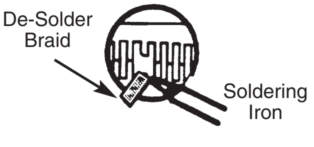

Polarity Symbol
123

5. Solder all pins to the soldering pads using a fine tipped soldering iron.


Solder
Soldering
Iron

6. Check with a magnifier for solder bridge between the pins or for dry joint between pins and soldering pads. To remove a solder bridge, use a de-solder braid as shown in the figure below.


Bridge
Solder


De-Solder
Braid
Soldering
Iron

Information for service about lead-free solder introduction

Hitachi introduced lead-free solder to conserve the "Earth Environment".
Please refer to the following before servicing.

(1) Characteristic of lead-free solder

Melting point of lead free solder is 40-50°C higher than solder containing lead.

(2) Solder for service

Following composition is reccomended.

" Sn - 3.0Ag - 0.5Cu " , or " Sn - 0.7 Cu "

Lead solder can be used, but there is a possibility of failure due to insufficient strength of the solder.

Caution when using solder containing lead.

Please remove previous solder as much as possible from the soldering point.
When soldering, please perfectly melt the lead-free solder to mix well with the previous solder.

(3) Soldering iron for lead-free solder.

Melting point of lead-free solder is higher than solder containing lead.
Use of a soldering tool "with temperature control" and "with much thermal capacitance" is reccomended.
(Reccomended temperature control : 320°C - 450°C)

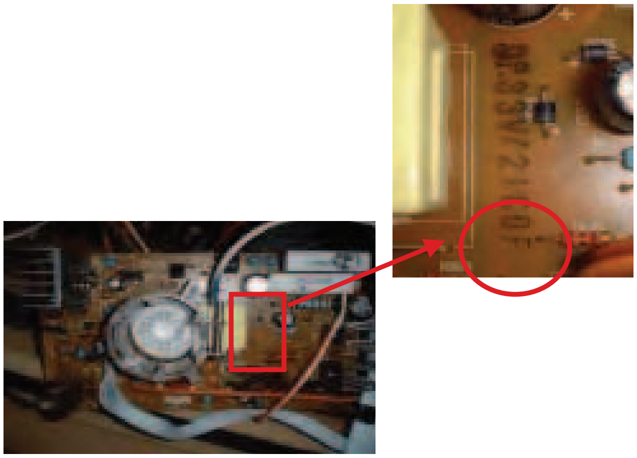
Reccomended temperature

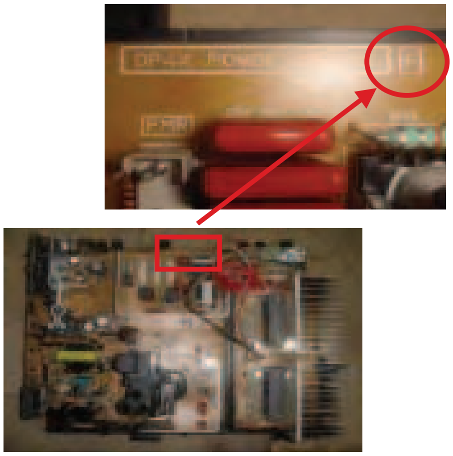
PWB with chip parts	320°C +/- 30°C
PWB without chip parts	380°C +/- 30°C
Chassis, metal, shield etc.	420°C +/- 30°C

(4) Identification of lead-free PWB

2003 models	>> not applied
2003 models	>> mixed
2004 models	>> lead-free solder is intoduced

On lead-free PWB, "F" is added at the end of stamp on PWB. (e.g. DP33W**F**)

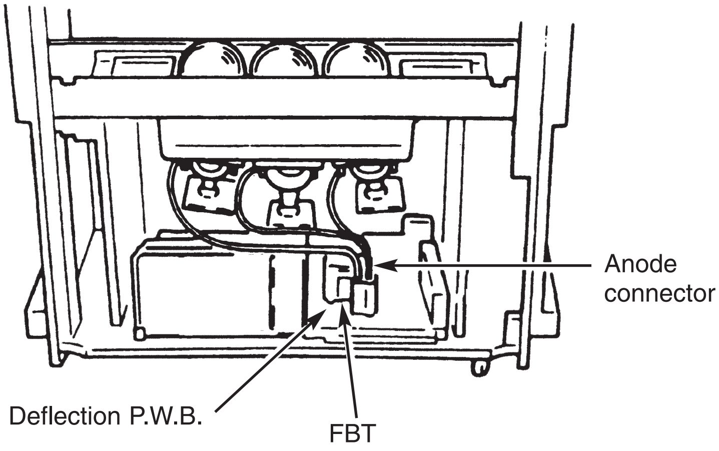




TECHNICAL CAUTIONS

CAUTIONS WHEN CONNECTING / DISCONNECTING THE HV CONNECTOR

Perform the following when the HV connector (anode connector) is removed or inserted for CPT replacement, etc.


Anode connector
Deflection P.W.B.
FBT

During Removal

1. Roll out silicon cover from FBT's contact area slowly.
2. While turning the connector about 90 degrees following the arrow (0 position), push the connector slightly towards the case. (Fig. A)

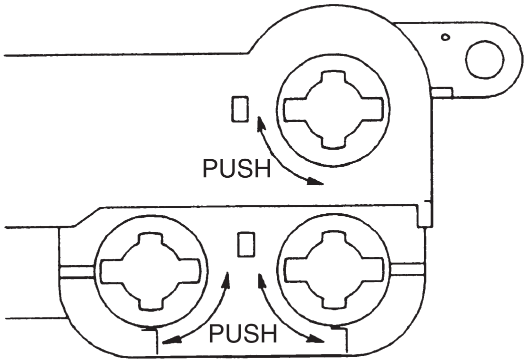


Fig. A

3. Remove the connector slowly by pulling it away from the case.

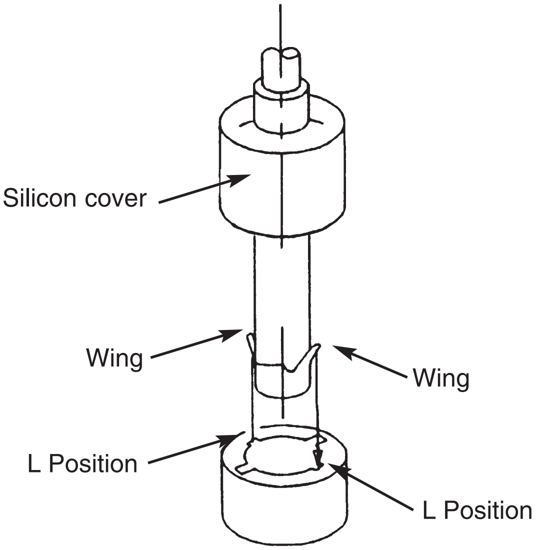

Silicon cover
Wing
Wing
L Position
L Position

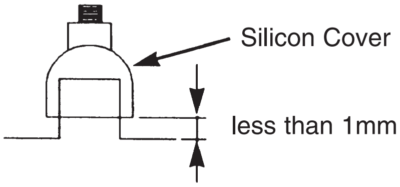
Fig. B

During Insertion

1. Please refer to direction for insertion as shown in Fig. B (L position). Insert connector until "CLICK" sound is heard.
2. Make sure the connector is pressed right in, so that it has a good contact with the spring.
3. Confirm the contact by pulling the connector slightly. (Don't pull hard because it may damage the connector).
4. Cover the high voltage output by carefully pushing silicon cover onto it. (Don't turn the connector).

(REMARK)

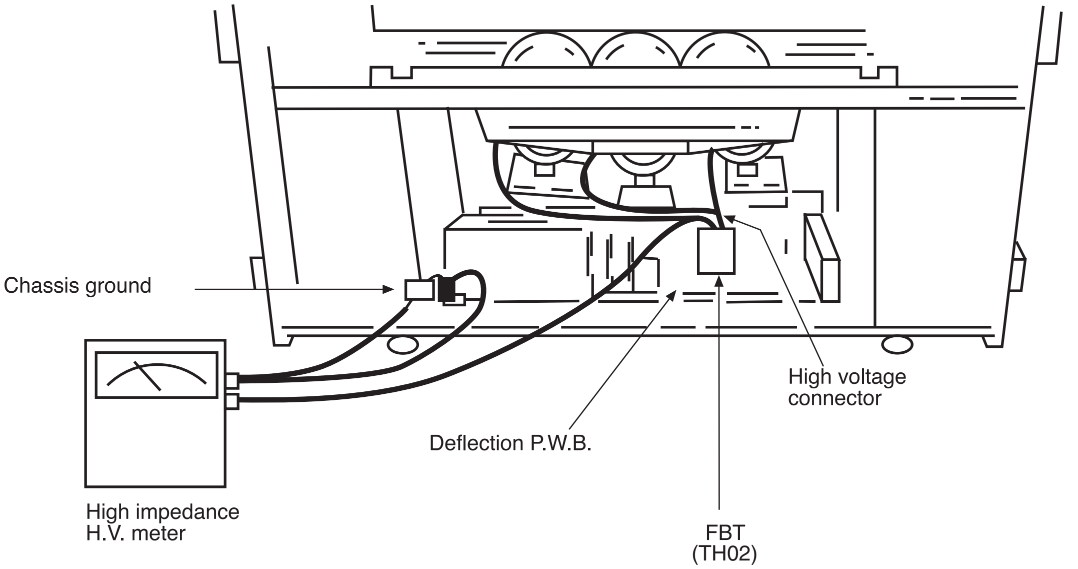
1. Make sure the silicon cover is covering the high voltage output.

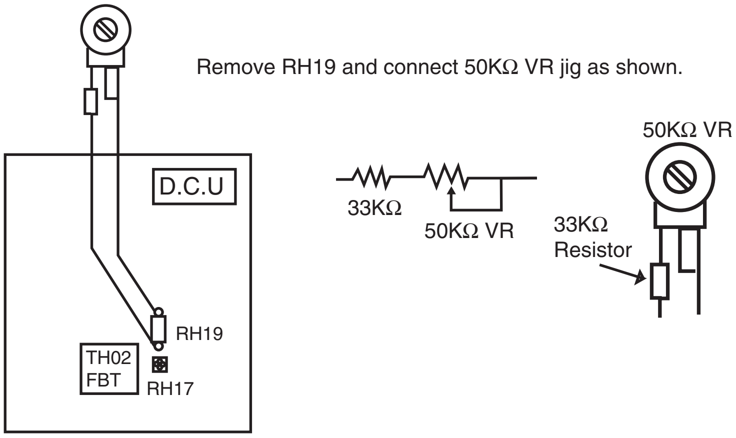

Silicon Cover
less than 1mm

TECHNICAL CAUTIONS

High Voltage limiter circuit operation check.

1. Turn off TV and connect jig as shown in Figure 2. Adjust jig fully counter-clockwise for minimum resistance.
2. Set the AC input to 120V AC and turn on TV.
3. Confirm test pattern on CRT is a usable picture, then slowly adjust jig until the picture disappears and TV shuts down.
4. When the limiter circuit is operating properly, High Voltage will be less than 37 kV at 1.62mA when TV shuts down.
5. Turn off set immediately after checking circuit operation.
6. Unplug set for one minute to reset shutdown circuit. Remove jig and voltmeter.


Chassis ground
High voltage connector
Deflection P.W.B.
High impedance H.V. meter
FBT (TH02)

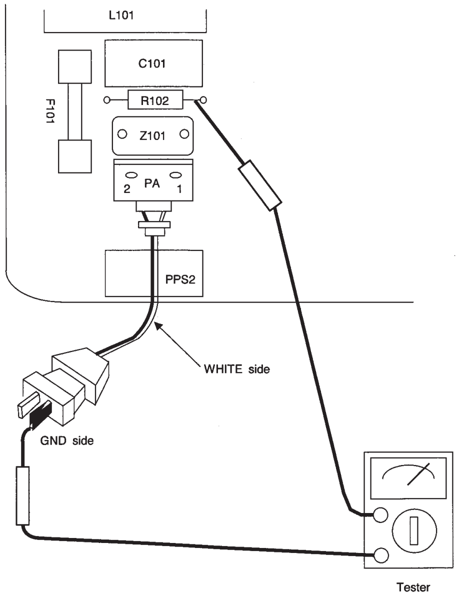

D.C.U
RH19
TH02 FBT
RH17
33KΩ
50KΩ VR
33KΩ Resistor
50KΩ VR

Remove RH19 and connect 50KΩ VR jig as shown.

Fig. 2. Power/Deflection P.W.B

AC CORD POLARITY

This check is based on the UL standard. Use the jigs specified by the production technology section. The GND side (wider blade) of the AC power cord should be connected to R102


L101
C101
F101
R102
Z101
2 PA 1
PPS2
WHITE side
GND side
Tester

SPECIFICATIONS

Models: 51S715
57S715

Cathode-Ray Tube:

51S715	R=P16MAB00RFA
57S715	G=P16MAB00HHA
	B=P16MAB00BMB

Power Input: 120 volts AC, 60 Hz

Power Consumption:
- Power Consumption (operating)
  51/57S715 . . . . .212W
- Power Consumption (maximum)
  51/57S715 . . . . .262W

Antenna Impedance: 75 Ohm Unbalanced
VHF / UHF / CATV

Receiving Channel:

BAND	CH
VHF	2~13
UHF	14~69
EXT. Mid	(A-5)~(A-1), 4+
CATV Mid.	A~I
CATV Super	J~W
CATV Hyper	(W+1)~(W+28)
CATV Ultra	(W+29)~(W+84)

Intermediate Frequency: Picture I-F Carrier 45.75 MHz
Sound I-F Carrier 41.25 MHz
Color Sub Carrier 42.17 MHz

Video Input: 1 Volt p-p, 75 Ohm

Video Output: 1 Volt p-p, 75 ohm

Audio Input: 470 mVrms, 47 k Ohm

Stereo Audio Output: 470 mVrms, 1 k Ohm

Audio Output Power:
Front: 20 watts per channel at 10% distortion,
8 ohm Impedance. Max output 25 watts.

Anode Voltage:
DP47 31.7±0.3kv (1.59±0.2mA)

Brightness:	**51”**	**57”**
(white screen)	270cd/m^2	215cd/m^2

Speakers: 51” 2 Woofers - 5 inch (12 cm) round
57” 2 Woofers - 6 inch (16 cm) round

Dimensions:

	51S715	**57S715**
• Height (in.)	50 3/8	54 9/16
(mm)	1,279	1,385.6
• Width (in.)	48 3/4	54
(mm)	1,239	1,372
• Depth (in.)	21 5/8	23 5/16
(mm)	550	592.5
• Weight (lbs.)	187.4	205
(kg)	85	93

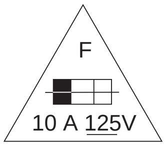
Circuit Board Assemblies:

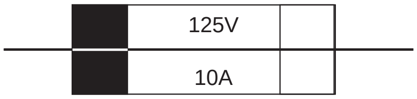
C.P.T. (B) P.W.B.
C.P.T. (G) P.W.B.
C.P.T. (R) P.W.B.
Power Deflection P.W.B.
Control P.W.B.
Sensor Distribution P.W.B.
Digital Power P.W.B.
Tuner P.W.B.
Signal P.W.B.
HDMI P.W.B.
Digital Main P.W.B.
Digital Sub P.W.B.
Convergence Amp. P.W.B.
Deflection Sub P.W.B.

CIRCUIT PROTECTION

CAUTION: Below is an EXAMPLE only. See Replacement Parts List for details. The following symbol near the fuse indicates fast operation fuse (to be replaced). Fuse ratings appear within the symbol.

Example:



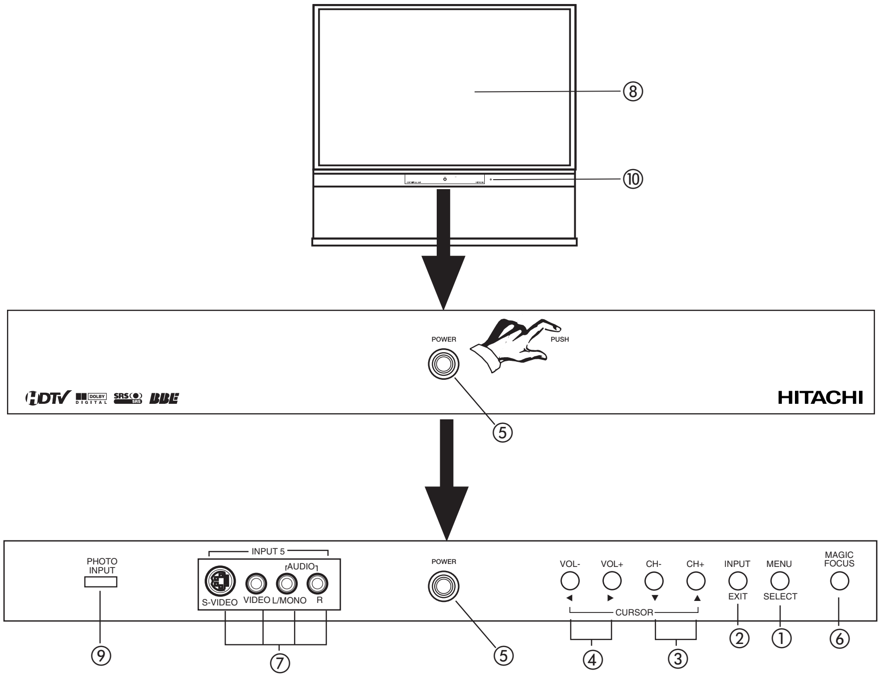


The rating of fuse F901 is 10A - 125V.
Replace with the same type fuse for continued protection against fire.

“RISK OF FIRE - REPLACE FUSE AS MARKED”

TABLE OF CONTENTS

GENERAL INFORMATION



① **MENU/SELECT button**

This button allows you to enter the MENU, making it possible to set TV features to your preference without using the remote. This button also serves as the SELECT button when in MENU mode.

② **INPUT/EXIT button**

Press this button to display the input menu, Ant A/B, INPUT:1,2,3,4,5 or Photo Input. This button also serves as the EXIT button when in MENU mode.

③ **CHANNEL selector**

Press these buttons until the desired channel appears in the top right corner of the TV screen. These buttons also serve as the cursor down (▼) and up (▲) buttons when in MENU mode.

④ **VOLUME level**

Press these buttons for your desired sound level. The volume level will be displayed on the TV screen. These buttons also serve as the cursor left (◀) and right (▶) buttons when in MENU mode. When the TV power is turned OFF at a volume level 31 or greater, the volume level will default to 30 when the TV is turned ON. However, if it is set to a level 30 or less, the volume level will be at the level it was set when the TV is turned ON.

⑤ **POWER button/ POWER LED**

Press this button to turn the TV on or off. This LED light is on during normal operation. At initial TV Turn “ON”, the Power button LED will blink several times before a channel can be tuned and viewed. This is a normal default operation of this television. The blinking time of the Power button LED varies depending on the period of time between when you turn “ON” and when you turn “OFF” the TV. This default operation is an energy saving feature. You can choose not to use this feature by selecting “On” for the “Quick Start Up” option in the On-Screen-Display Menu. Select “Setup” in the On-Screen-Display Menu, then select “Quick Start Up”. Select the “On” feature to quickly tune and view channels at initial TV Turn “ON”.

⑥ **MAGIC FOCUS**

Use this button to automatically adjust your picture quality to optimum performance.

⑦ **FRONT INPUT JACKS (INPUT 5)**

Use these audio/video jacks for a quick hook-up from a camcorder or VCR to instantly view your favorite show or new recording. Press the INPUT button and select Input 5. If you have mono sound, insert the audio cable into the left audio jack.

⑧ **IR RECEIVER Sensor (1)**

The screen area acts as one of the IR receivers (remote sensor) of the TV. When using the remote control, point it towards the screen for best response.

⑨ **PHOTO INPUT**

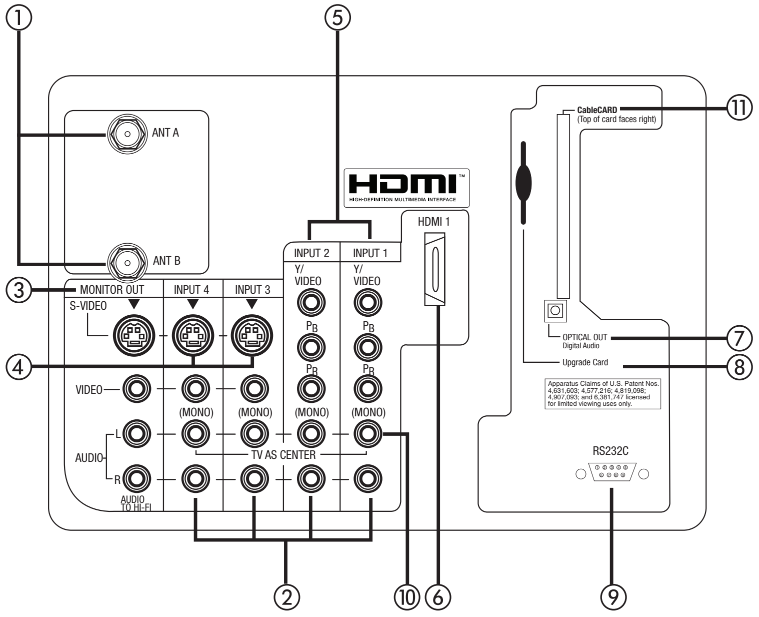
Insert USB cable from your Digital Camera to view your digital still pictures.

⑩ **IR RECEIVER Sensor (2)**

This is an additional remote sensor for a better remote control range of response.

TABLE OF CONTENTS

GENERAL INFORMATION


①
⑤
ANT A
ANT B
CableCARD
(Top of card faces right)
⑪
HDMI
HIGH-DEFINITION MULTIMEDIA INTERFACE
HDMI 1
INPUT 2
INPUT 1
Y/
VIDEO
③
MONITOR OUT
INPUT 4
INPUT 3
S-VIDEO
P_B
P_R
OPTICAL OUT
Digital Audio
⑦
Upgrade Card
⑧
④
Apparatus Claims of U.S. Patent Nos. 4,631,603; 4,577,216; 4,819,098; 4,907,093; and 6,381,747 licensed for limited viewing uses only.
VIDEO
(MONO)
L
AUDIO
R
TV AS CENTER
RS232C
AUDIO TO HI-FI
②
⑩
⑥
⑨

① Antenna Input

ANT A- A 75-Ohm RF antenna or CATV (Cable TV) input. ANT A can be displayed as a main picture or sub-picture.

ANT B- A 75-Ohm RF antenna input. ANT B can only be displayed as a main picture. ANT B cannot be displayed as a sub-picture.

NOTE: You may ask your local cable company whether DTV services are available.

② Audio/Video Inputs 1, 2, 3 and 4

By using the INPUTS button and CURSOR PAD of the remote control you can select each video source. Use the audio and video inputs to connect external devices, such as VCRs, camcorders, laserdisc players, DVD players etc. (If you have mono sound, insert the audio cable into the left audio jack).

NOTE: You may use VIDEO or S-VIDEO inputs to connect to INPUT 3 and 4, but only one of these inputs may be used at a time.

③ MONITOR OUT

These jacks provide fixed or variable audio and video signals which are used for recording. Use the S-VIDEO Output for high quality video output.

④ S-VIDEO Inputs 3 and 4

Inputs 3 and 4 provide S-VIDEO (Super Video) jacks for connecting equipment with S-VIDEO output capability.

⑤ Component: Y-P_BP_R Inputs

Inputs 1 and 2 provide Y-P_BP_R jacks for connecting equipment with this capability, such as a DVD player or Set Top Box. You may use composite video signal for both inputs.

NOTES:

1. Do not connect composite VIDEO and S-VIDEO to Input 3, 4 or 5 at the same time. S-VIDEO has priority over VIDEO input.
2. Your component outputs may be labeled Y, B-Y, and R-Y. In this case, connect the components B-Y output to the TV's P_B input and the components R-Y output to the TV's P_R input.
3. Your component outputs may be labeled Y-C_BC_R. In this case, connect the component C_B output to the TV's P_B input and the component C_R output to the TV's P_R input.
4. It may be necessary to adjust TINT to obtain optimum picture quality when using the Y-P_BP_R inputs.
5. To ensure no copyright infringement, the MONITOR OUT output will be abnormal, when using the Y-P_BP_R jacks.
6. Input 1 and Input 2 (Y/VIDEO) can be used for composite video and component video input.

⑥ **HDMI1 (High Definition Multimedia Interface) (INPUT 1)**

About HDMI

HDMI is the next-generation all digital interface for consumer electronics. HDMI enables the secure distribution of uncompressed high-definition video and multi-channel audio in a single cable. Because digital television (DTV) signals remain in digital format, HDMI assures that pristine high-definition images retain the highest video quality from the source all the way to your television screen.

Use the HDMI input for your external devices such as Set-Top-Boxes or DVD players equipped with an HDMI output connection.

HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.

NOTES:
1. The HDMI input is not intended for use with personal computers.
2. Only DTV formats such as 1080i, 720p, 480i and 480p are available for HDMI input.

⑦ **Optical Out (Digital Audio)**

This jack provides Digital Audio Output for your audio device that is Dolby® Digital and PCM compatible, such as an audio amplifier.

NOTE: *Manufactured under license from Dolby Laboratories. “Dolby” and the double-D symbol are trademarks of Dolby Laboratories.

⑧ **Upgrade Card**

This card slot is for future software upgrades. Hitachi will notify you if a software upgrade is required for your TV. In order to receive written notification, please complete and return your warranty card.

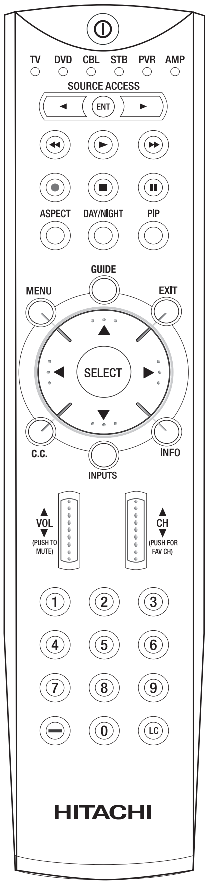
⑨ **RS232C Input**

For use with third party home Audio/Video control systems which are commercially available. Please see your dealer regarding these “non Hitachi” home control systems.

⑩ **TV AS CENTER (INPUTS 1-4)**

These jacks are for stereo amplifiers with center signal output capability. This feature allows the TV speakers to be used as a center speaker. The TV must be set as a center channel by selecting “TV as Center” on the Internal Speakers Settings of the Audio Menu.

REMOTE CONTROL



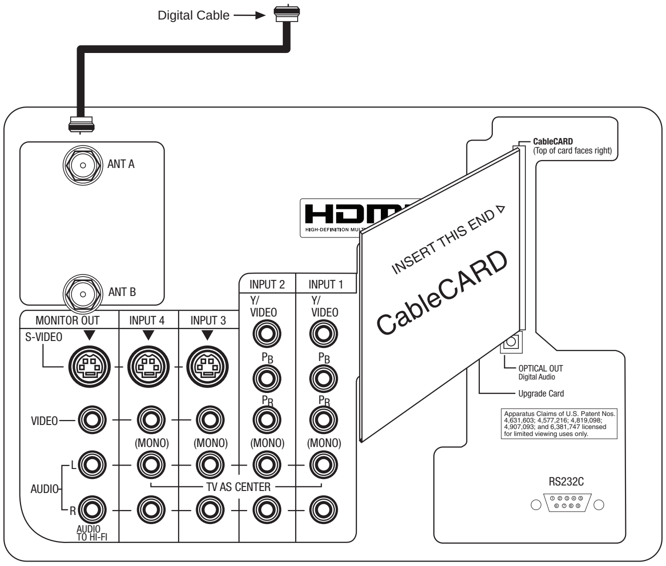
CLU-3842WL
(HL02062)

GENERAL INFORMATION

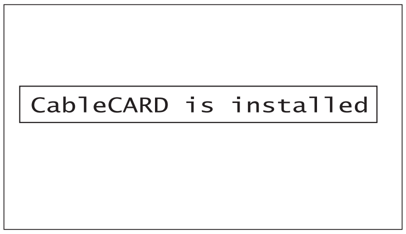
⑪ CableCARD Slot

This slot is for the CableCARD that will be provided by your local cable operator to gain access to chosen cable channels. The CableCARD will allow you to tune digital and high definition cable channels. Please call your local cable operator if this service is available before requesting a CableCARD (also known as Point of Deployment (POD) module).

Connect a coaxial cable to ANT A terminal of the Rear Panel Jacks.
Insert the CableCARD into the slot (Top of card should be facing right as shown).

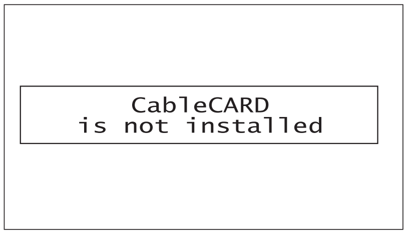

Digital Cable
ANT A
ANT B
MONITOR OUT
S-VIDEO
INPUT 4
INPUT 3
INPUT 2
INPUT 1
Y/ VIDEO
PB
PR
VIDEO
(MONO)
AUDIO
L
R
TV AS CENTER
AUDIO TO HI-FI
INSERT THIS END ▷
CableCARD
CableCARD
(Top of card faces right)
OPTICAL OUT
Digital Audio
Upgrade Card
Apparatus Claims of U.S. Patent Nos. 4,631,603; 4,577,216; 4,819,098; 4,907,093; and 6,381,747 licensed for limited viewing uses only.
RS232C

If the CableCARD is properly installed or not installed, the TV will display the following respective screens.



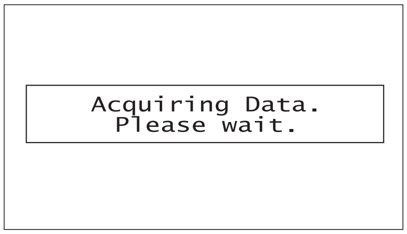
```
CableCARD is installed
```

OR

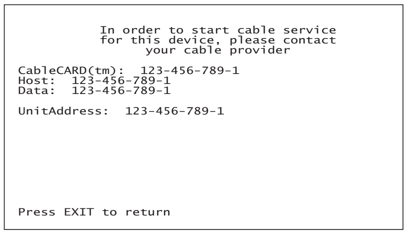


```
CableCARD
is not installed
```

After the CableCARD is installed, wait until the second screen below appears. The third screen below will appear if a channel is not authorized for viewing. Press the EXIT button to exit the second screen.



```
Acquiring Data.
 Please wait.
```



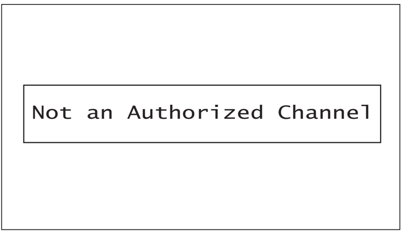
```
        In order to start cable service
        for this device, please contact
              your cable provider

CableCARD(tm):  123-456-789-1
Host:  123-456-789-1
Data:  123-456-789-1

UnitAddress:  123-456-789-1




Press EXIT to return
```

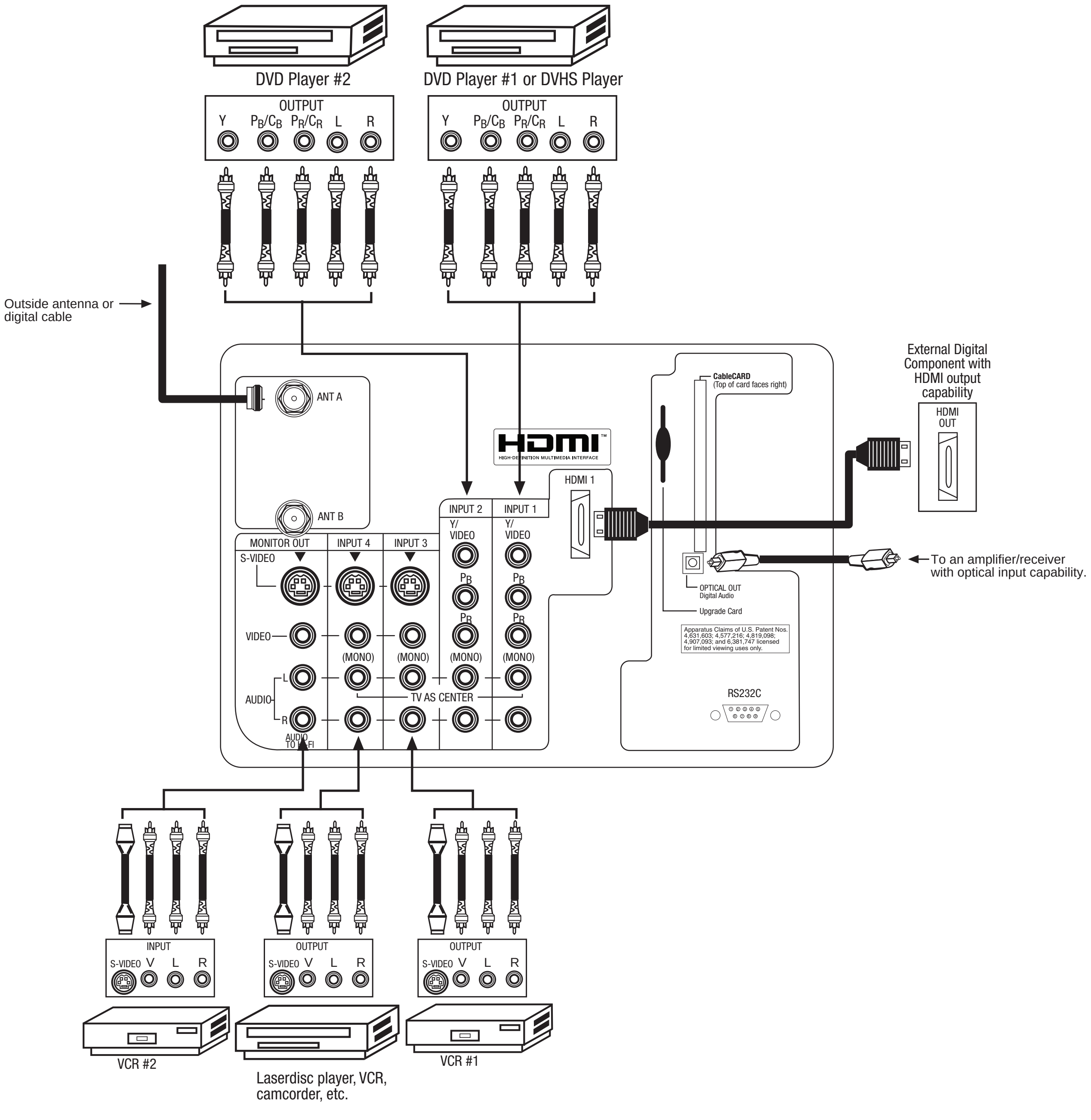


```
Not an Authorized Channel
```

Please take note of all information on the screen (you will provide this information to your cable operator). Call your cable operator and give them the information from the card to start your cable service.

NOTES:
1. A digital cable subscription is required.
2. Antenna B will not be available when CableCARD is inserted.
3. Do not insert a PCMCIA card into the CableCARD slot.

GENERAL INFORMATION
TYPICAL FULL-FEATURE SETUP


DVD Player #2
OUTPUT
Y
PB/CB
PR/CR
L
R
DVD Player #1 or DVHS Player
OUTPUT
Y
PB/CB
PR/CR
L
R
Outside antenna or digital cable
ANT A
ANT B
HDMI
HIGH-DEFINITION MULTIMEDIA INTERFACE
HDMI 1
INPUT 2
INPUT 1
Y/ VIDEO
PB
PR
(MONO)
MONITOR OUT
INPUT 4
INPUT 3
S-VIDEO
VIDEO
AUDIO
L
R
AUDIO TO HI-FI
TV AS CENTER
CableCARD
(Top of card faces right)
OPTICAL OUT
Digital Audio
Upgrade Card
Apparatus Claims of U.S. Patent Nos. 4,631,603; 4,577,216; 4,819,098; 4,907,093; and 6,381,747 licensed for limited viewing uses only.
RS232C
External Digital Component with HDMI output capability
HDMI OUT
To an amplifier/receiver with optical input capability.
INPUT
S-VIDEO
V
L
R
OUTPUT
S-VIDEO
V
L
R
OUTPUT
S-VIDEO
V
L
R
VCR #2
Laserdisc player, VCR, camcorder, etc.
VCR #1

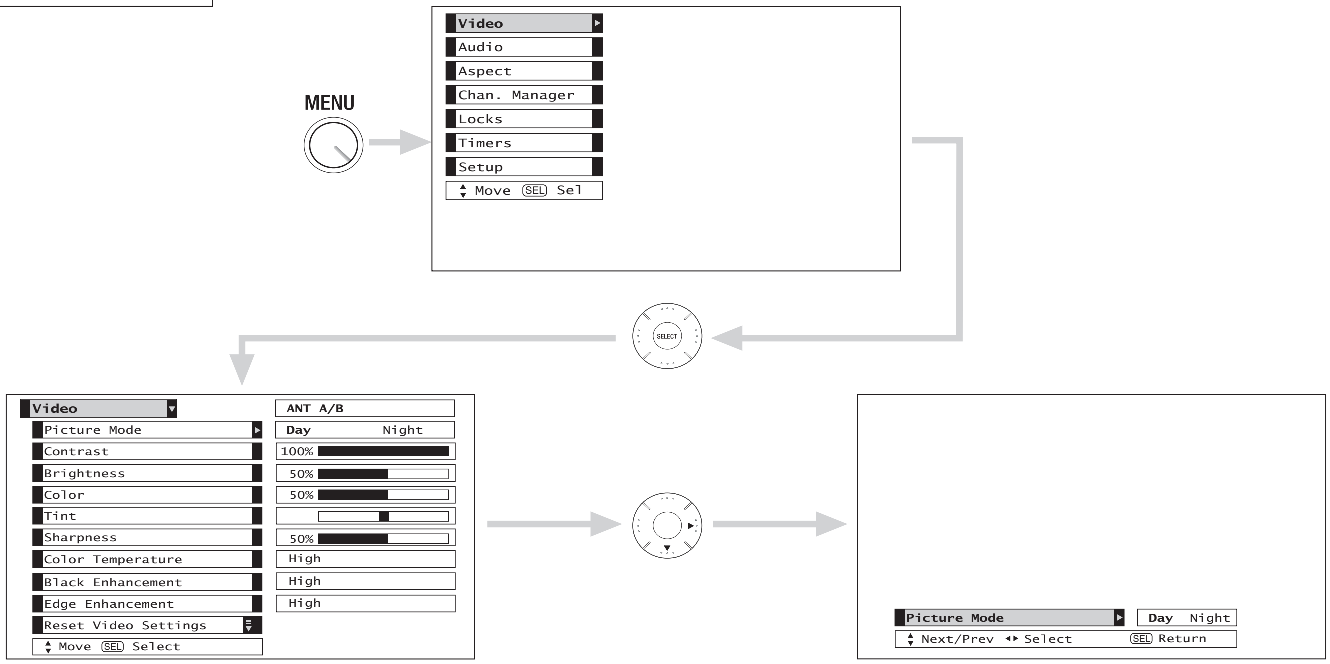
NOTES:
1. Connect only 1 component to each input jack.
2. Follow connections that pertain to your personal entertainment system.
3. Composite video signal can be input to Input2~Input5.
4. Cables are not included with the purchase of this TV, except when noted as “provided”.

CUSTOMIZED PICTURE AND SOUND ADJUSTMENTS

Video

Picture Mode

Use this function to choose from automatic picture settings to optimize your TV's performance.


MENU
Video
Audio
Aspect
Chan. Manager
Locks
Timers
Setup
Move SEL Sel
SELECT
Video
ANT A/B
Picture Mode
Day Night
Contrast
Brightness
Color
Tint
Sharpness
Color Temperature
Black Enhancement
Edge Enhancement
Reset Video Settings
Move SEL Select
Picture Mode
Day Night
Next/Prev Select
SEL Return

Contrast 100%
Brightness 50%
Color 50%
Sharpness 50%
Color Temperature High
Black Enhancement High
Edge Enhancement High

Use CURSOR PAD ◀ or ▶ to highlight and select Picture Mode settings.

Function	Day 51"	Day 57"	Night	Reset
Contrast	100%	100%	70%	Reset the video menu settings on current input to the Day or Night conditions depending on the selected VIDEO mode.
Brightness	50%	50%	55%	
Color	50%	50%	50%	
Tint	50%	50%	50%	
Sharpness	50%	50%	40%	
Color Temperature	High	50%	Standard	
Black Enhancement	Middle	Middle	Low	
Contrast Mode	High	High	Low	
Auto Color	Off	Off	Off	
Noise Reduction	Off	Off	Off	
Color Management (Set User Colors)	Off	Off	Off	
Auto Movie Mode (TV/Cinema Detection)	Off	Off	Off	

Press EXIT to quit menu or select PICTURE MODE to return to previous menu.

CUSTOMIZED PICTURE AND SOUND ADJUSTMENTS

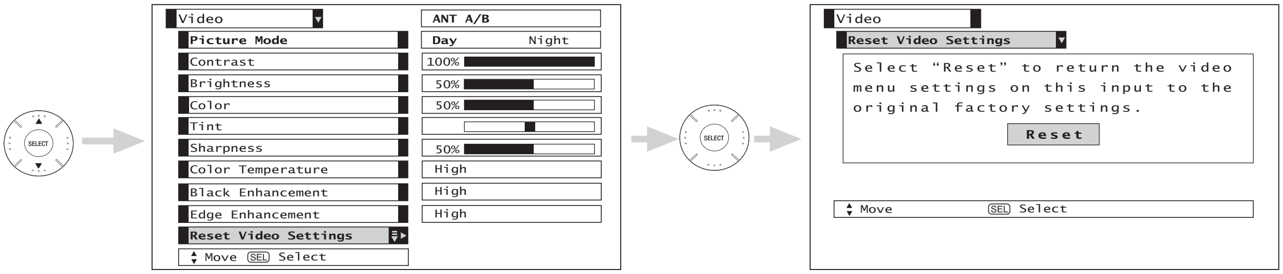
Use the CURSOR PAD ▲ or ▼ to highlight the function to be adjusted.
Press the CURSOR PAD ◀ or ▶ to adjust the function. Press the SELECT button to select the function settings.
Press MENU to return to main menu or select PICTURE MODE to return to previous menu.
Press EXIT to quit menu.

Contrast	Use this function to change the contrast between black and white levels in the picture.
Brightness	Use this function to adjust overall picture brightness.
Color	Use this function to adjust the level of color in the picture.
Tint	Use this function to adjust flesh tones so they appear natural.
Sharpness	Use this function to adjust the amount of fine detail in the picture. Sharpness function will be disabled when Noise Reduction is on.
Color Temperature	Set this to High for cooler color with more blue, set to Medium for more natural color, set to Standard for accurate color or set to Black/White for more reddish color.
Black Enhancement	Use this function to enhance the shadow detail in dark scenes using the settings off, low, middle and high.
Edge Enhancement	Use this function to automatically enhance the edges between light and dark areas using the settings Off, Low, Middle and High.

CUSTOMIZED PICTURE AND SOUND ADJUSTMENTS

Reset Video Settings

This function allows you to Reset the Video Menu Settings of the present input and return it to the Day VIDEO mode.


SELECT
Video
ANT A/B
Picture Mode
Day Night
Contrast
100%
Brightness
50%
Color
50%
Tint
Sharpness
50%
Color Temperature
High
Black Enhancement
High
Edge Enhancement
High
Reset Video Settings
Move SEL Select
SELECT
Video
Reset Video Settings
Reset
Move SEL Select

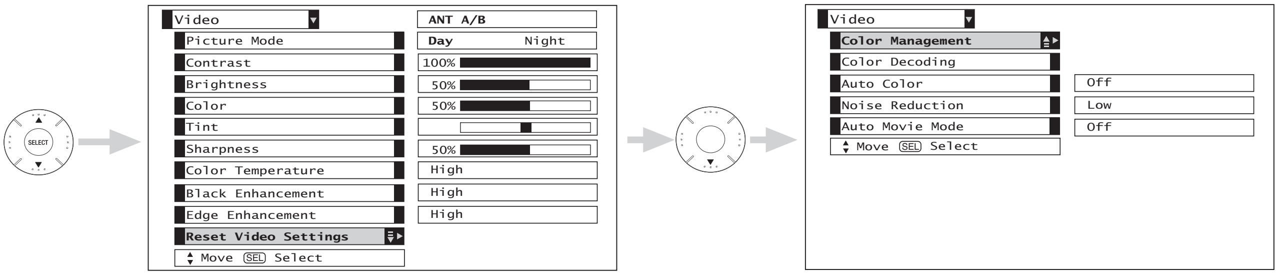
Select "Reset" to return the video menu settings on this input to the original factory settings.

Use CURSOR PAD to highlight functions.
Press the SELECT button to select Reset Video Settings.

Use the CURSOR PAD ▼ to access other video settings.

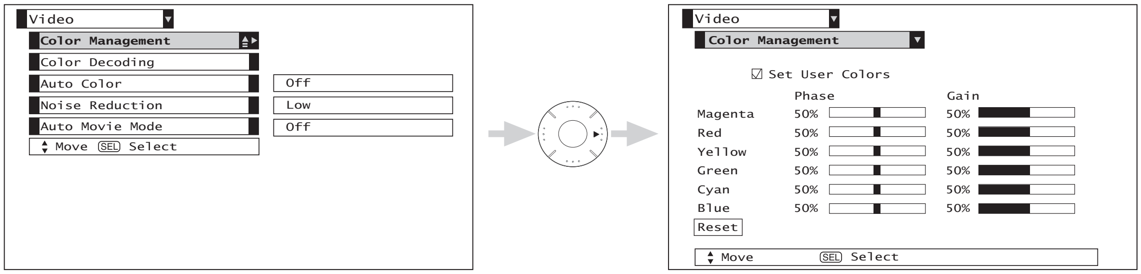
You can customize each of the Video Inputs to your preference to increase viewing performance and pleasure, depending upon the video program being viewed. If RESET is selected, only the selected mode will reset to the initial conditions as explained above.

If RESET is selected in Video:1 mode, only Video:1 mode will return to factory conditions.


SELECT
Video
ANT A/B
Picture Mode
Day Night
Contrast
100%
Brightness
50%
Color
50%
Tint
Sharpness
50%
Color Temperature
High
Black Enhancement
High
Edge Enhancement
High
Reset Video Settings
Move SEL Select
Video
Color Management
Color Decoding
Auto Color
Off
Noise Reduction
Low
Auto Movie Mode
Off
Move SEL Select

Color Management

Use this function to adjust and balance the listed individual colors to make them either deeper or more pure depending on the user's preference. Adjust the GAIN settings to make the color brighter (+) or darker (-). Adjust the PHASE settings to make the colors deeper (+) or normal (-) to match real life colors.


Video
Color Management
Color Decoding
Auto Color
Off
Noise Reduction
Low
Auto Movie Mode
Off
Move SEL Select
Video
Color Management
☑ Set User Colors
Reset
Move SEL Select

	Phase	Gain
Magenta	50%	50%
Red	50%	50%
Yellow	50%	50%
Green	50%	50%
Cyan	50%	50%
Blue	50%	50%

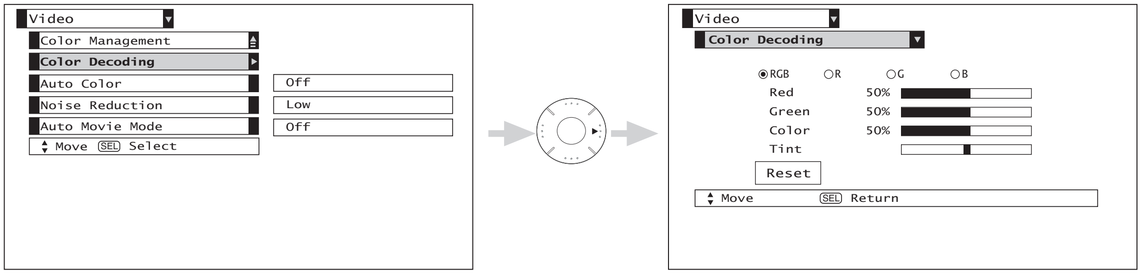
Use the CURSOR PAD to highlight function.
Press the SELECT button to select User Colors setting. When the function has a "√" in the box, it is ON.
Press the CURSOR PAD ◀, ▶, ▼, ▲, to highlight and adjust individual colors.
Use the CURSOR PAD to highlight and select "Reset" to return all colors to default settings.

NOTE: When the Set User Colors box is not checked off, the listed colors will be grayed out.

CUSTOMIZED PICTURE AND SOUND ADJUSTMENTS

Color Decoding

Use this function to adjust and balance the percentage of Red, Green and Blue according to the user's preference in each of the four color temperature settings. Use TINT to adjust flesh tones so they appear natural.



Auto Color: Off
Noise Reduction: Low
Auto Movie Mode: Off

◉ RGB ○ R ○ G ○ B
Red 50%
Green 50%
Color 50%

Use the CURSOR PAD to highlight function.
Press down to select from 4 menu items.
Press the CURSOR PAD ◀, ▶, ▼, ▲, to highlight and adjust Red, Green, Color and Tint.
Use the CURSOR PAD to highlight and select “Reset” to return all settings to default.

NOTE: Color Decoding settings are independently stored in each of the 4 Color Temperature settings.

Auto Color

The AUTO COLOR function automatically monitors and adjusts the color to maintain constant color levels even after a program or channel changes. It also maintains natural flesh tones while preserving fidelity of background colors.

NOTES:
1. When using Component, HDMI or DVI input, Auto Color will not be available (grayed out).
2. When using digital channels, Auto Color will not be available (grayed out).

Noise Reduction

The NOISE REDUCTION function automatically reduces conspicuous noise in the picture without degrading picture quality. Set NOISE REDUCTION to OFF if the TV experiences picture blocking. When Noise Reduction is ON, Sharpness function is disabled (grayed out).

Auto Movie Mode

The Auto Movie Mode function turns ON or OFF the 3:2 PULLDOWN DETECTION SPECIAL FEATURE. Theatrical movies are shot on film at 24 frames or still pictures per second, instead of 30 frames or 60 fields like video. When film is transferred to video for television viewing, the disparity between the two frame rates must be reconciled. This involves a process known as 3:2 pulldown.

When Auto Movie Mode is turned ON from the VIDEO menu, your Hitachi Projection Television will activate the circuitry for this special feature to improve video performance when watching film based sources.

NOTES:
1. When using Progressive Scan Component, HDMI or DVI input (Ex. 480p, 720p, 1080i), Auto Movie Mode will not be available (grayed out).
2. All Video settings are independent of each other based on it's input (ANT A/B, Input 1~5, Photo Input).

CUSTOMIZED PICTURE AND SOUND ADJUSTMENTS

Magic Focus Tune Up

Auto Digital Convergence Adjustment
Please turn ON your television for at least 20 minutes before using this feature.

The Magic Focus button on control panel will not work when adjustment mode is set to Manual.

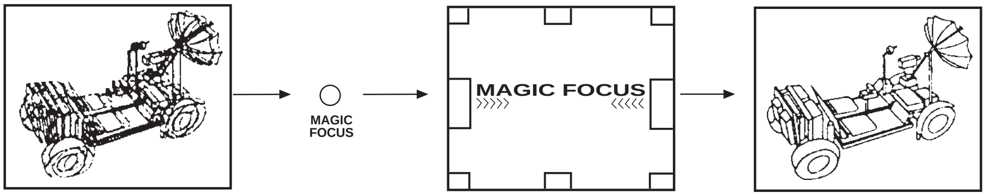
Your HITACHI Projection TV has three color projection tubes: one for red, one for green, one for blue. When mixed together in the proper proportion, the output of these three color tubes can produce any color. To produce these colors, however, the beams must be precisely aligned over each other so that the colors can be mixed. The process of aligning these picture beams is called “convergence”.

Over a period of time, the picture tubes can drift out of alignment due to normal bumps and vibrations or moving the TV. If you move your TV, or if, after a time, you notice color rings or halos around objects in the picture, you may want to converge (align) the colors.

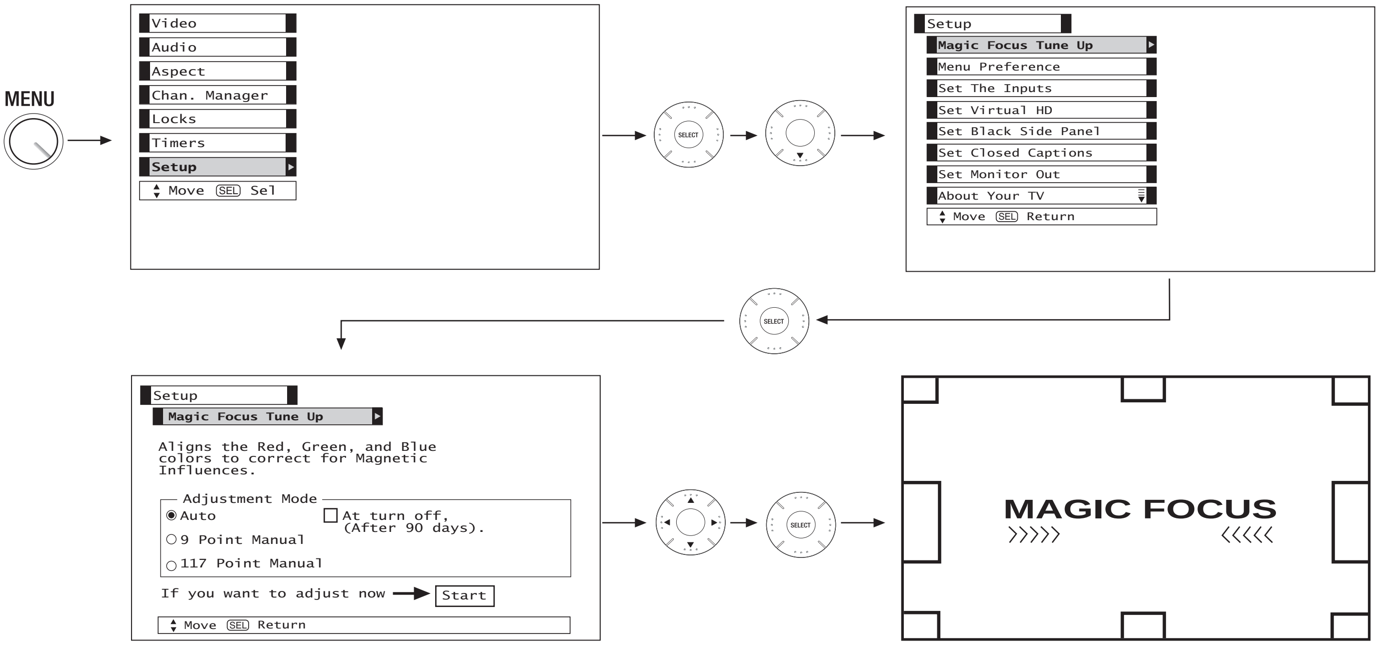
Properly converged, the lines appear white, which is actually a combination of the outputs of the three color tubes. The output of the green tube is stationary. The outputs of the red and blue tubes can be adjusted. When properly aligned, the outputs of all three tubes should be directly over each other to produce the white lines.

To simplify convergence, HITACHI incorporates a function called MAGIC FOCUS located on the front control panel, which allows the TV to self-adjust. Press this MAGIC FOCUS button and the convergence self adjustment will start and this process will take approximately 20 seconds. If this button is pressed during this process, no change in picture quality will occur. After this 20 second self-adjust period, picture quality will be optimum (do not move the TV during self-adjust).

You may also select MAGIC FOCUS TUNE UP from the Setup Menu.


MAGIC FOCUS
MAGIC FOCUS
›››››
‹‹‹‹‹

NOTE: Only a momentary press of the MAGIC FOCUS button is necessary to start AUTO DIGITAL CONVERGENCE. At any time during this convergence correction process, you may press the MAGIC FOCUS button to exit the MAGIC FOCUS mode. However, the convergence correction process needs to be completed to SAVE the new corrected convergence data.


MENU
Video
Audio
Aspect
Chan. Manager
Locks
Timers
Setup
Move SEL Sel
SELECT
Setup
Magic Focus Tune Up
Menu Preference
Set The Inputs
Set Virtual HD
Set Black Side Panel
Set Closed Captions
Set Monitor Out
About Your TV
Move SEL Return
SELECT
Setup
Magic Focus Tune Up
Move SEL Return
SELECT
MAGIC FOCUS
›››››
‹‹‹‹‹

Aligns the Red, Green, and Blue colors to correct for Magnetic Influences.

Adjustment Mode
● Auto
○ 9 Point Manual
○ 117 Point Manual
☐ At turn off, (After 90 days).

If you want to adjust now → Start

NOTE: When Auto Start “At turn off” is selected, the TV will adjust itself after 90 days.

CUSTOMIZED PICTURE AND SOUND ADJUSTMENTS

Manual Convergence Adjustment Mode (9 Point Manual Adjustment)

NOTES:
1. Please turn ON your television for at least 20 minutes before using this feature.
2. Auto Adjustment Mode is recommended. If convergence is still not acceptable, use the Manual Adjustment Mode.
3. If Auto Adjust mode is selected or the Magic Focus button is pressed, all manual adjust mode settings will be erased.

Using the Remote Control, select SETUP-MAGIC FOCUS TUNE UP-MANUAL ADJUSTMENT MODE-9 POINT MANUAL-START to access convergence 9 point pattern. The adjustment point is indicated by the Adjustment Point Cursor.

To Move Adjustment Point

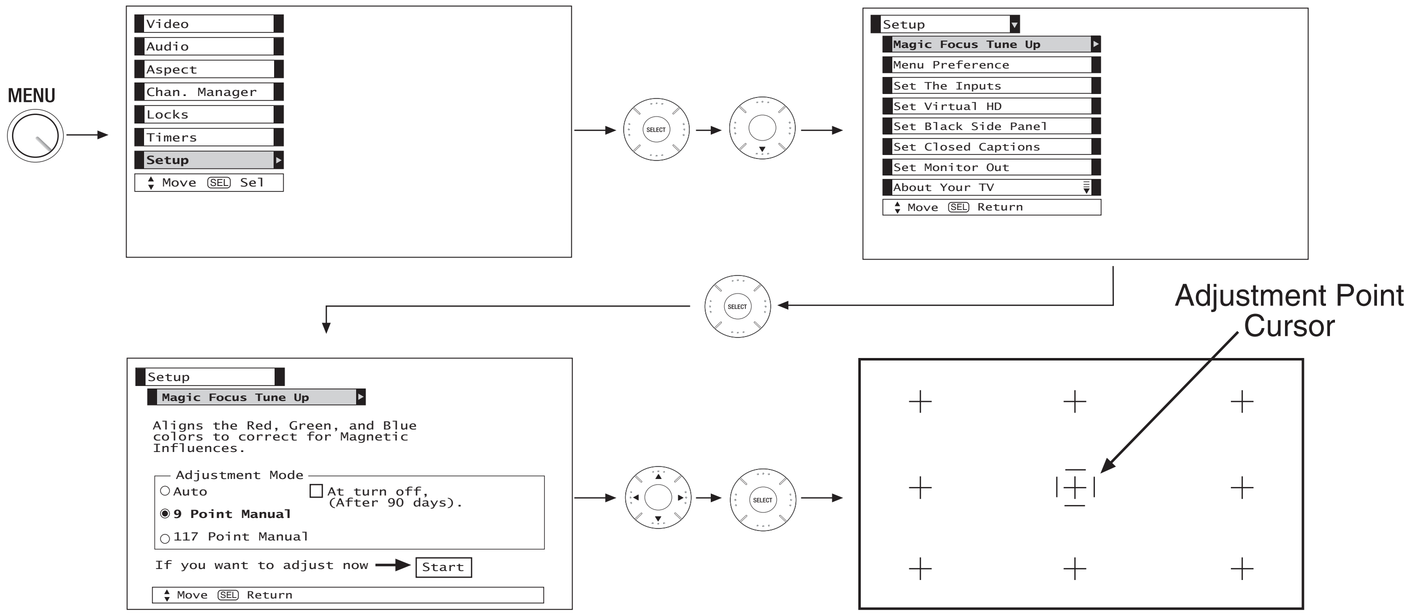
To move the adjustment point cursor using the CURSOR PAD, the Adjustment Cursor must be WHITE. Another way to move the Adjustment Point Cursor is to press the following buttons: [2] up, [4] left, [5] down, [6] right. If you use the number buttons while the adjustment point is WHITE, it will change to RED.

To Change the Color of Adjustment Point

Press the SELECT button repeatedly (WHITE-RED-BLUE-WHITE...). Green color is fixed and cannot be adjusted.

To Adjust the Convergence

Move the Adjustment Cursor to the point to be adjusted. Use the CURSOR PAD to match the RED and BLUE colors to GREEN (reference color). Properly aligned, all three colors should appear white.


MENU
Video
Audio
Aspect
Chan. Manager
Locks
Timers
Setup
Move SEL Sel
SELECT
Setup
Magic Focus Tune Up
Menu Preference
Set The Inputs
Set Virtual HD
Set Black Side Panel
Set Closed Captions
Set Monitor Out
About Your TV
Move SEL Return
SELECT
Adjustment Point Cursor
SELECT

Setup
Magic Focus Tune Up

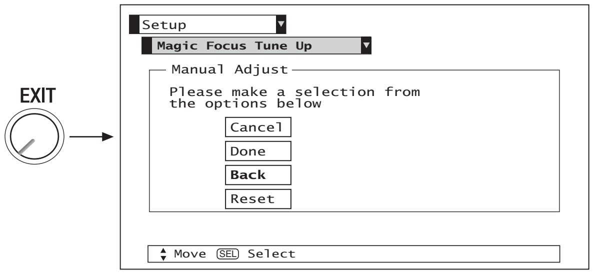
Aligns the Red, Green, and Blue colors to correct for Magnetic Influences.

Adjustment Mode
○ Auto
☐ At turn off, (After 90 days).
● **9 Point Manual**
○ 117 Point Manual

If you want to adjust now → Start

Move SEL Return

If convergence is acceptable after Manual Convergence adjustment, press EXIT button to access menu mode.


EXIT
Setup
Magic Focus Tune Up
Manual Adjust
Cancel
Done
Back
Reset
Move SEL Select

Please make a selection from the options below

Use the CURSOR PAD to highlight your chosen option. Press the SELECT button to select.
Select CANCEL to cancel adjusted data and return to main picture.
Select DONE to save your adjustments and return to main picture.
Select BACK to return to the manual convergence adjustment mode.
Select RESET to recall the factory pre-set convergence data.

CUSTOMIZED PICTURE AND SOUND ADJUSTMENTS

Manual Convergence Adjustment Mode (117 Point Manual Adjustment)

NOTES:
1. Please turn ON your television for at least 20 minutes before using this feature.
2. Auto Adjustment Mode is recommended. If convergence is still not acceptable, use the Manual Adjustment Mode.
3. If Auto Adjust mode is selected or the Magic Focus button is pressed, all manual adjust mode settings will be erased.

Using the Remote Control, select SETUP-MAGIC FOCUS TUNE UP-MANUAL ADJUSTMENT MODE-117 POINT MANUAL-START to access convergence 117 point pattern. The adjustment point is indicated by the Adjustment Point Cursor.

To Move Adjustment Point

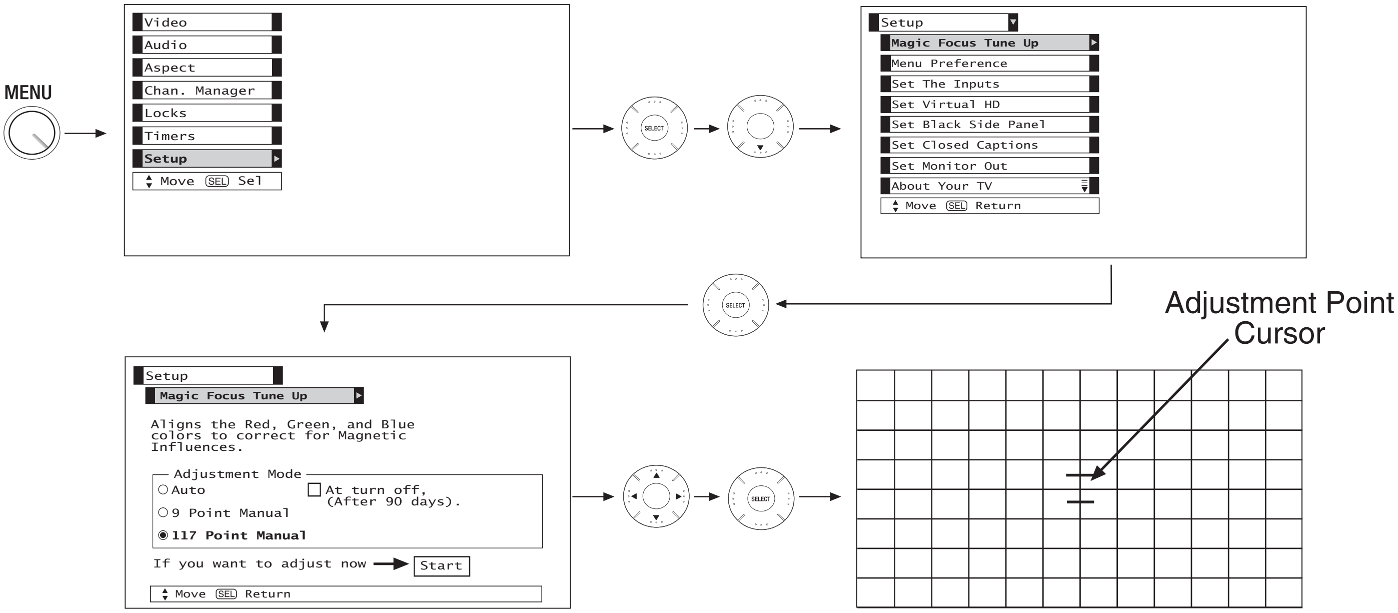
To move the adjustment point cursor using the CURSOR PAD, the Adjustment Cursor must be WHITE. Another way to move the Adjustment Point Cursor is to press the following buttons: [2] up, [4] left, [5] down, [6] right. If you use the number buttons while the adjustment point is WHITE, it will change to RED.

To Change the Color of Adjustment Point

Press the SELECT button repeatedly (WHITE-RED-BLUE-WHITE...). Green color is fixed and cannot be adjusted.

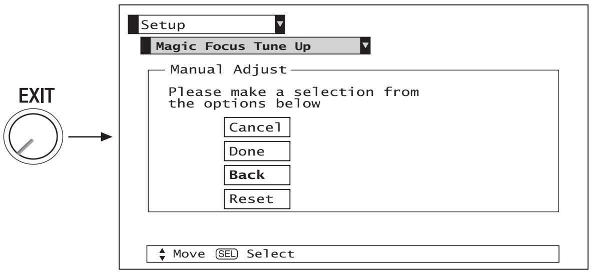
To Adjust the Convergence

Move the Adjustment Cursor to the point to be adjusted. Use the CURSOR PAD to match the RED and BLUE colors to GREEN (reference color). Properly aligned, all three colors should appear white.


MENU
Video
Audio
Aspect
Chan. Manager
Locks
Timers
Setup
Move SEL Sel
SELECT
Setup
Magic Focus Tune Up
Menu Preference
Set The Inputs
Set Virtual HD
Set Black Side Panel
Set Closed Captions
Set Monitor Out
About Your TV
Move SEL Return
SELECT
Adjustment Point Cursor
Setup
Magic Focus Tune Up
Adjustment Mode
○ Auto
☐ At turn off, (After 90 days).
○ 9 Point Manual
● 117 Point Manual
If you want to adjust now
Start
Move SEL Return
SELECT

Aligns the Red, Green, and Blue colors to correct for Magnetic Influences.

If convergence is acceptable after Manual Convergence adjustment, press EXIT button to access menu mode.


EXIT
Setup
Magic Focus Tune Up
Manual Adjust
Cancel
Done
Back
Reset
Move SEL Select

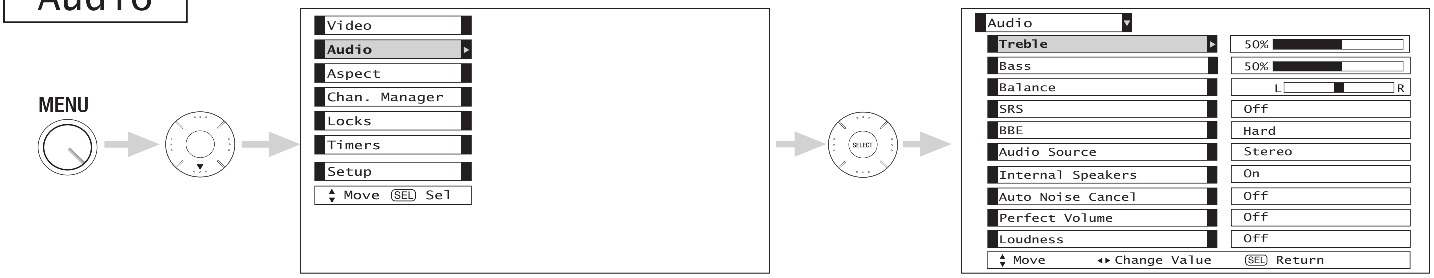
Please make a selection from the options below

Use the CURSOR PAD to highlight your chosen option. Press the SELECT button to select.
Select CANCEL to cancel adjusted data and return to main picture.
Select DONE to save your adjustments and return to the main picture.
Select BACK to return to the manual convergence adjustment mode.
Select RESET to recall the factory pre-set convergence data.

CUSTOMIZED PICTURE AND SOUND ADJUSTMENTS

Audio

Select AUDIO to adjust the TV to your preference and to improve the sound quality.



Treble	50%
Bass	50%
Balance	L R
SRS	Off
BBE	Hard
Audio Source	Stereo
Internal Speakers	On
Auto Noise Cancel	Off
Perfect Volume	Off
Loudness	Off

Press CURSOR PAD ▲, ▼, to select menu item.
Press CURSOR PAD ◀ or ▶ to adjust the function.
Press EXIT to quit the MENU, or select Audio to return to the main menu.

NOTE: If TREBLE is selected you are adjusting treble. The additional menu items Bass and Balance can be selected and adjusted in the same manner.

Treble This function controls the high frequency audio to all speakers.

Bass This function controls the low frequency audio to all speakers.

Balance This function will control the left to right balance of the Projection TV internal speakers.

SRS

Based on the principles of the human hearing system, SRS technology delivers and exciting and realistic 3D Sound experience from just two external speakers (or) the two internal speakers of your HITACHI Television. If your HITACHI Television is connected to an external audio system, SRS will also create an incredible 3D sound experience from two speakers and even enhance a complete multi-speaker surround sound system.

NOTES: *SRS and the (●) symbol are registered trademarks of SRS Labs, Inc. SRS technology is incorporated under license from SRS Labs, Inc.

BBE

BBE Technology

Sound reproduction quality enhancement system. The BBE technology produces sound that is natural and crisp from just two speakers (or) the two internal speakers of your HITACHI television. If your HITACHI television is connected to an external audio system, BBE will also create an incredible crisp sound experience from two speakers and even more complete and accurate reproduction of the original performance. BBE brings to the listener's ear a more complete and accurate reproduction of the original performance. Each voice, speaking or singing, each instrument or sound effect is presented with its attendant harmonics or partials more clearly audible. The ear can then more easily recognize the unique tonal colors of each sound as though the sound was being produced live.

NOTES: Licensed by BBE Sound, Inc. under USP4638258, 5510752 and 5736897. BBE and BBE symbol are registered trademarks of BBE Sound, Inc. Manufactured under license from BBE Sound, Inc.

TABLE OF CONTENTS

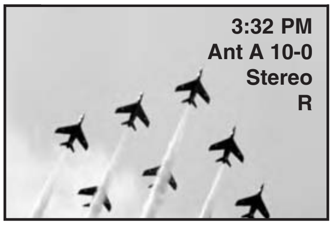
CUSTOMIZED PICTURE AND SOUND ADJUSTMENTS

Audio Source

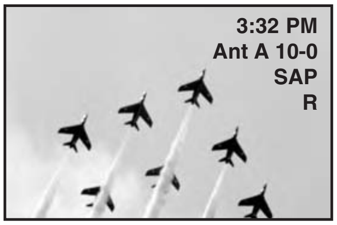
Multi-Channel Television Sound will allow you to select STEREO (a stereo broadcast), MONO (monaural sound) used when receiving a weak stereo broadcast or 2nd Audio Prog (SAP) which may be a secondary language, weather report, etc.

The sources received will be displayed at the top right edge of the TV. The source you select will be displayed above the sources received. See example below for each selection when both stereo and second audio are received (monaural is always received).

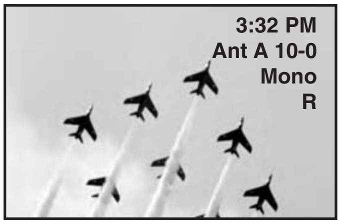
STEREO SELECTED



SAP SELECTED



MONO SELECTED



Internal Speakers

This function is useful when setting up the external speakers.

ON - Select this feature if using the internal speakers only.

TV as Center - Select this feature when setting up external speakers from a separate stereo system. The TV's speakers will work as the center speaker.

OFF - Select this feature if you prefer to use only speakers from a separate stereo system.

Auto Noise Cancel

This function eliminates the noise between stations. If a channel is tuned and is noisy, this function will automatically eliminate the audio for that channel.

Perfect Volume

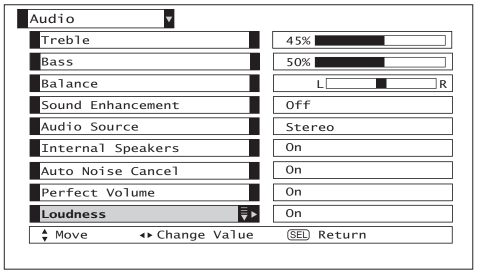
This function will automatically adjust volume so each channel and input has the same average volume level.

Loudness

This function turns loudness ON or OFF. It will improve the quality of both low and high frequency sounds when listening at low volume levels.

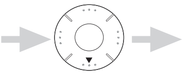
CUSTOMIZED PICTURE AND SOUND ADJUSTMENTS

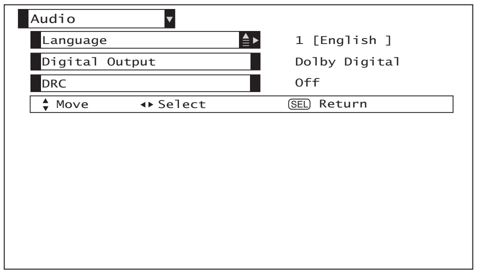
Use the functions below if your TV is connected to an amplifier/receiver with optical digital input with Dolby Digital or PCM decoder capabilities.



Audio	
Treble	45%
Bass	50%
Balance	L R
Sound Enhancement	Off
Audio Source	Stereo
Internal Speakers	On
Auto Noise Cancel	On
Perfect Volume	On
Loudness	On

▲▼ Move ◄► Change Value SEL Return





Audio	
Language	1 [English]
Digital Output	Dolby Digital
DRC	Off

▲▼ Move ◄► Select SEL Return

Language	Some programs transmit more than one DTV language option. Most will have English as a default language. The language function will allow you to select up to 4 language options (if available).

Digital Output

This function allows you to select between Dolby® Digital and PCM.

Dolby® Digital - Select this feature if the TV is connected to an amplifier/receiver with a Dolby® Digital only decoder; it will provide six independent soundtrack channels through the optical output jack (Digital Audio).

PCM - Select this feature if the TV is connected to an amplifier/receiver with a PCM only decoder; it will provide two independent soundtrack channels through the optical output jack (Digital Audio).

DRC

Dynamic Range Compression - Use this function to compress the range of sound volume. By compressing the range of sound volume, it is possible not only to suppress the output of loud sound at night but also to raise the volume of low sound. This is only effective when the TV is connected via the optical out (digital audio) to an amplifier/receiver with a Dolby® Digital decoder. The default setting is ON.
Use the CURSOR PAD ◄, ► to select the chosen options.

NOTE: *Manufactured under license from Dolby Laboratories. “Dolby” and the double-D symbol are trademarks of Dolby Laboratories.

NOTE: These functions are only available when viewing digital programs.

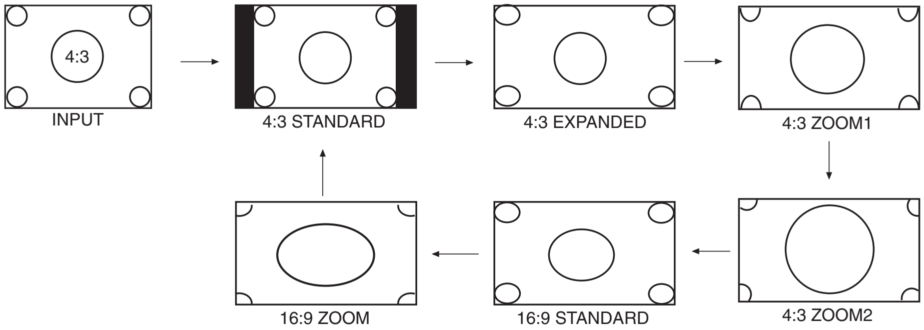
DISPLAY PICTURE FORMAT

ASPECT button
Press this button to quickly change the picture format ASPECT ratio.

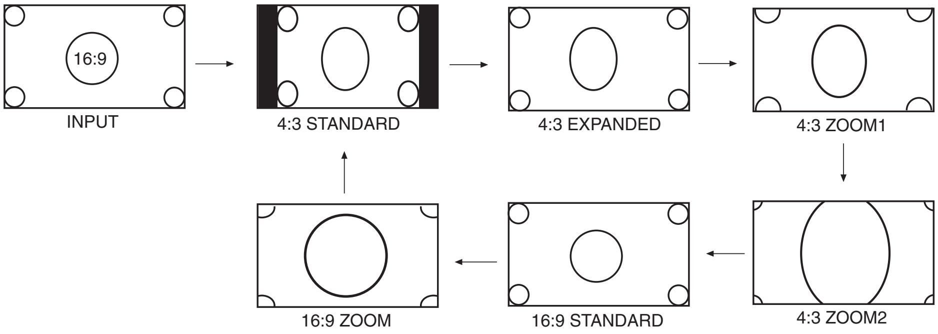
Depending on the input signal format received, the picture format ratio allows you to adjust the images through the following options.

4:3 STANDARD	Use this aspect mode to display conventional (4:3) images. Side panels (gray areas) are placed to the left and right of the image to preserve the original aspect ratio of the source. Note: Use this mode for only 15% of your total viewing time to prevent uneven aging of the phosphors. Phosphors in the lighted area of the picture will age more rapidly than the gray areas.
4:3 EXPANDED	Use this aspect mode to display conventional (4:3) sources by linearly increasing image expansion from the center towards the edges of the display area in order to fill it.
4:3 Zoom1/Zoom2	Use these aspect modes to zoom in on conventional (4:3) sources.
16:9 STANDARD	Use this aspect mode to display 16:9 sources like HDTV and DVD's preserving the original 16:9 aspect ratio.
16:9 Zoom	Use this aspect to Zoom-in once while in 16:9 aspect.

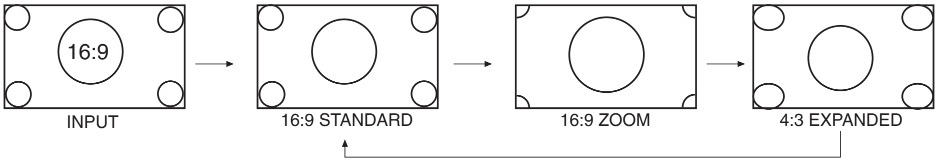
(1) NTSC/480i/480P Input


4:3
INPUT
4:3 STANDARD
4:3 EXPANDED
4:3 ZOOM1
4:3 ZOOM2
16:9 STANDARD
16:9 ZOOM

(2) 480i/480P Input

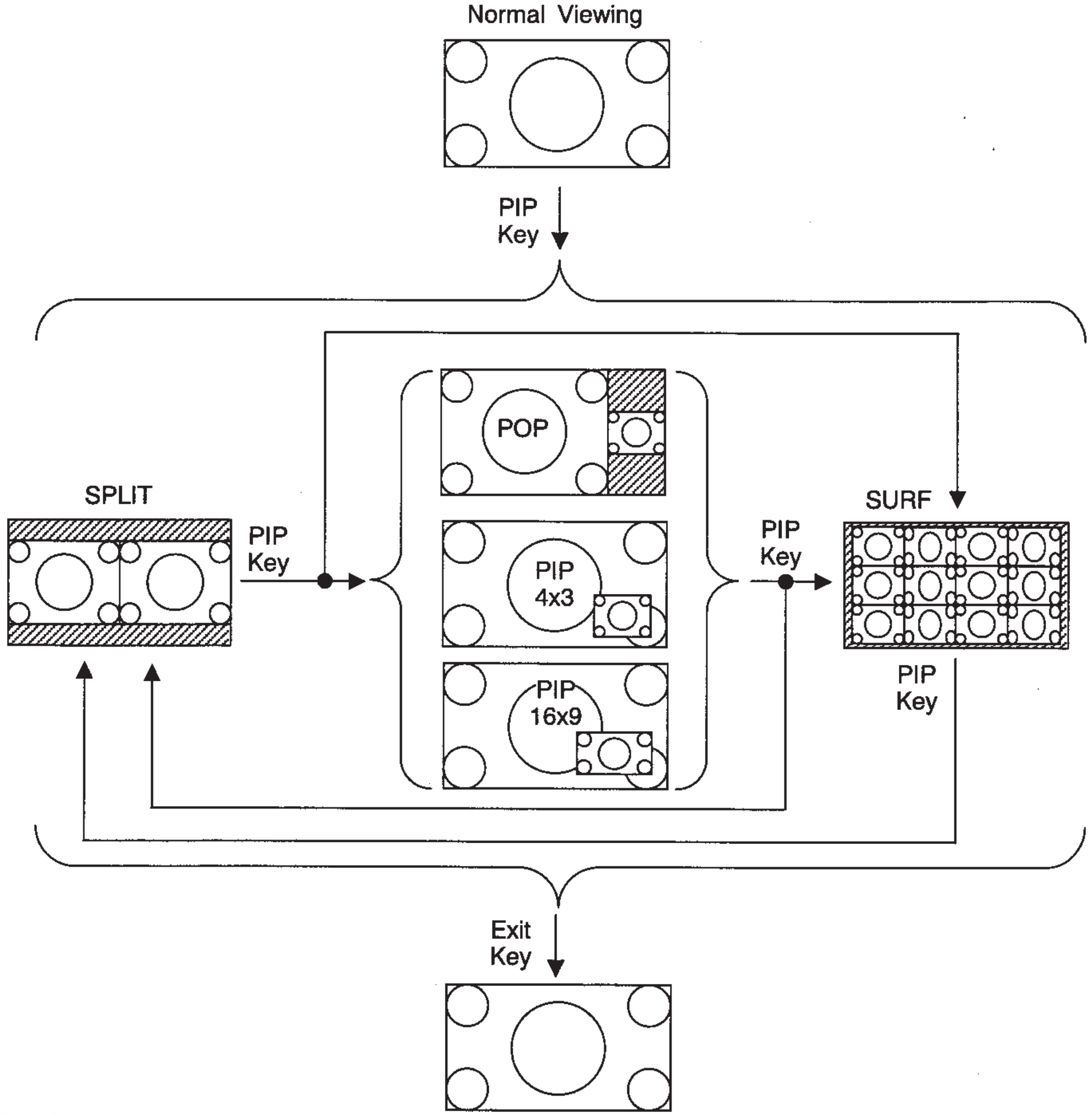

16:9
INPUT
4:3 STANDARD
4:3 EXPANDED
4:3 ZOOM1
4:3 ZOOM2
16:9 STANDARD
16:9 ZOOM

(3) HDMI/720P/1080i Input


16:9
INPUT
16:9 STANDARD
16:9 ZOOM
4:3 EXPANDED

NOTES:
1. The Aspect Style setting you select for an ANT input will automatically be set for the other ANT inputs. However, all five video inputs have independent Aspect Style settings.
2. Vertical position adjustments are available when you choose 4:3 EXPANDED/ZOOM1/ZOOM2 or 16:9 ZOOM aspect style.

PIP Operation


Normal Viewing
PIP
Key
SPLIT
PIP
Key
POP
PIP
4x3
PIP
16x9
PIP
Key
SURF
PIP
Key
Exit
Key

(Note)

- If PIP Key is pushed from a Normal screen, PIP of Last Mode will be displayed.
- A shipment setup of PIP Mode is SPLIT Mode.
- 720p / 480p signals cannot be displayed by POP/PIP Mode. Therefore, it displays by SPLIT Mode.
- When Last mode is POP/PIP Mode and a Main signal is 1080i, PIP Mode is set to PIP. When Last mode is POP/PIP Mode and a Main signal is 480i/NTSC, PIP Mode is set to PIP.
- SURF Mode is not displayed at a V-Chip setup. SPLIT Mode is displayed at this time.
- When EXIT Key is pushed, PIP turns off. When PIP is turns off, PIP Mode of a display turns into Last Mode.

SERVICE ADJUSTMENTS

TO GO TO AN ADJUSTMENT, CLICK ON ITS HEADING BELOW

1. ASSEMBLED P.W.B ADJUSTMENT....32
1-1. Service Menu Access (NTSC, SDTV and HDTV) 33
1-2. Comb Filter Operation Check 33
1-3. Video Settings Check....33
1-3-1. Color Temperature Check 33
1-4. High Voltage Adjustment 33

2. FINAL ASSEMBLY ADJUSTMENT (Adjustment should be according to below order) 33
2-1. Cut Off Adjustment....33
2-2. DCU Phase Data Setting 34
2-3. Horizontal Position Adjustment (Coarse) 34
2-4. Raster Tilt (Deflection Yoke)....34
2-5. Beam Alignment....35
2-6. Raster Position Adjustment 35
2-7. Beam Form Adjustment 36
2-8. Side Pin Distortion, Vertical Size, Horizontal Size, Trapezoid Distortion Adjustment 36
2-9. Lens Focus....37
2-10. Static Focus 39
2-11. Digital Convergence 39
2-11-1. Magic Focus Character Set Up 40
2-11-2. Magic Focus Pattern Set Up 41
2-11-3. Convergence Jig Screen Specification 45
2-11-4. Raster Position Adjsutment 46
2-11-5. Convergence Point Adjustment 46
2-11-6. Magic Focus Initialize 47
2-12. Blue Defocus Adjustment....48
2-13. White Balance Adjustment....48
2-14. Sub Brightness Adjustment 49
2-15. Sub-Picture Signal Amplitude Adjustment 50
2-16. Horizontal Position Adjustment 51
2-17. Scanning Area Check 51
2-18. Bottom Panel Distortion Check 52
2-19. Side Panel Distortion and Top/Bottom Panel Distortion Check 52
2-20. I2C Parameter List....54
2-21. Hitachi RS232C Communication Specification 73
2-22. Protection Circuit Block Diagram 83
2-23. Troubleshooting Flow Chart 84
2-24. DC Voltage 90
3-0. Signal Block Assembly....99
3-1. Power Deflection....100
3-2. CPT (R)(G)(B), Focus Pack....102
3-3. Control P.W.B. 103

***IMPORTANT**
For many of the above adjustments, it is necessary to have an HDTV (1080i or 720P) signal generator, SDTV (480P) signal generator, as well as the usual NTSC (480i) signal generator.
Hitachi recognizes that few companies offer HDTV or SDTV signal generators and that the cost of these generators is sometimes prohibitive. For this reason, we suggest the use of a set-top-box for HDTV and SDTV adjustments. Usually, there is a switch on the set-top-box which enables it to output HDTV (1080i or 720P) or SDTV (480P) signals even with no input. In this case, the sync is automatically detected by the TV (at the Y-P_BP_R Inputs on the rear panel).

TABLE OF CONTENTS

1. ASSEMBLED P.W.B. ADJUSTMENT

1.1 Service Menu Access

Adjustment Procedure

(1) Press and hold INPUT key on Control Panel and then press POWER key on control panel to access I²C adjustment mode.

(2) Receive signal on main picture. (NTSC, SDTV or HDTV).
Some menu pages have I²C adjustments for SDTV and HDTV. The set will automatically allow you to set these items only when a SDTV or HDTV signal is input to the COMPONENT jacks on the back of the TV. See table below.

(3) Check the OSD according to table on the following pages, using CURSOR ▲, ▼ on Remote Control.
*: Adjustable Data
Others: Fixed Data (be careful not to change)

(4) Press EXIT key to exit I²C ADJUST mode.

NOTES: (1) If the TV I²C data is different from the I²C Parameter (of the following pages) for fixed data, change the data.

(2) When exchanging microprocessor or EEPROM and TV is turned on for first time, it requires initialization of Memory Initial of I²C adjustment menu. Press CURSOR ▶ and hold for 3 seconds to initialize memory.

(3) Use FACTORY RESET to set TV to out of factory shipping conditions: Do not use MEMORY INITIALIZE.

IMPORTANT: IN CASES AFTER THE SERVICE PERSON PERFORMS A FACTORY RESET OR MEMORY INITIALIZE, **YOU MUST UPLUG TV AND PLUG BACK IN.**

BACK TO ADJUSTMENTS

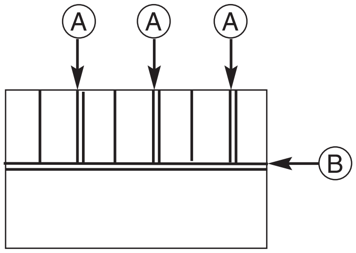
1.2 Comb filter operation check

Adjustment preparation

(1) Receive the color bar signal at the regular tuning point.
(2) Set the CONTRAST control to MAX and the other controls to center.

Adjustment procedure

(1) Check line dots condition at border of each color A, B as follows.



Check Ⓐ and Ⓑ line dots.

3D Y/C
Dots
Ⓐ None
Ⓑ None

1.3 Video Settings (Advanced Settings) Check

1.3.1 Color Temperature Control Check

Adjustment preparation

(1) Receive the white raster signal.
(2) Set the video controls to normal conditions.

Adjustment procedure

(1) Select the Video mode using the ▲▼ buttons and press Select button.
(2) Select Color Temperature option using the ▲▼ buttons and press Select button.
(3) Select MEDIUM using ◀▶ buttons and Picture will turn reddish slightly.
(4) Select STANDARD using ◀▶ buttons and Picture will turn more reddish.
(5) Select Black & White using ◀▶ buttons and Picture will turn more and more reddish.
(6) Select HIGH using ◀▶ buttons and Picture will turn bluish.

⚠ **Important:** High Voltage adjustment should NOT be adjusted in field. This is adjusted at factory using precise loads and should NOT be readjusted.

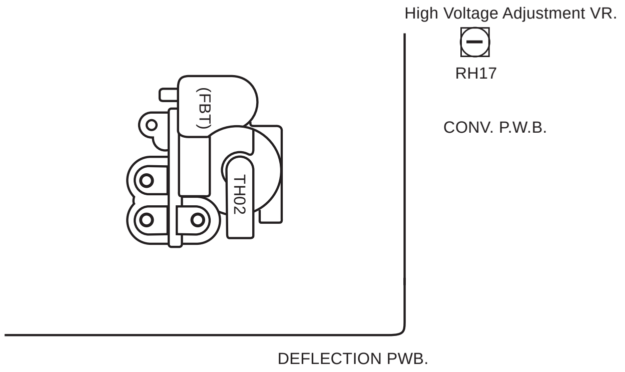
1.4 High Voltage Adjustment (should NOT be readjusted in field).

Adjustment preparation

(1) Connect High Voltage meter to FBT High Voltage output. Connect GND of High Voltage meter to CPT GND or FBT GND.
(2) Check that High Voltage adjustment VR (RH17) is set to mechanical center. (located behind FBT on DEFLECTION PWB).
(3) Receive circle pattern signal.
(4) VIDEO control should be reset.

Adjustment procedure

(1) Adjust High Voltage to following spec. by turning VR RH17 slowly. ADJ. SPEC = 31.7KV±0.2kV.
(2) After adjustment, fix VR RH17 with Silicone glue (KE40RTV).



2. FINAL ASSEMBLY ADJUSTMENT

2.1 Cut Off Adjustment

Adjustment Preparation:
1. Allow 20 minutes pre-heat run.
2. Set video conditions to factory presets.

Adjustment Procedure:
1. Access the I2C Adjustment Mode
1.1 On the front panel, press and hold the INPUT button, then press the POWER button; release both after hearing HV startup.
2. Select SERVICE from adjustment menu by pressing the ▶ button on the remote. This will collapse the vertical deflection.
3. Turn all screen (G2) controls to the full counter-clockwise position.

4. Bring up each screen G2 control, one at a time, until that color is just barely visible. (Also, adjust the focus control for each color to obtain optimum focus.)
5. After all colors are finished, press the ◀ button on the remote to un-collapse the vertical, and return to normal.

NOTE: Never power off the TV while in the Service position of the I2C Adjustment Mode (vertical collapsed) as CRT damage may result.

2.2 DCU Phase Data Setting

Adjustment preparation

(1) Cut off adjustment should be finished.
(2) Set video conditions to factory preset.
(3) R/C must be in DCAM mode (see page 47).

Adjustment procedure

(1) Receive any NTSC signal.
(2) Push "SERVICE ONLY" SW on DEF./CONV. PWB. (Enter to DCU ADJ. mode).
(3) Press [C.C] key on R/C. (Green cross hatch is displayed).
Then push EXIT key on R/C. (Character pattern is displayed. This is the PHASE setting mode).
(4) Set PH-H phase data as shown below by using [4] and [6] key on R/C.
(5) Set PH-V phase data as shown below by using [2] and [5] key on R/C.
(6) Set CR-H phase data as shown below by using CURSOR PAD ◀ and ▶ key on R/C.
(7) Set CR-V phase data as shown below by using CURSOR PAD ▲ and ▼ key on R/C.
(8) Push [EXIT] then [C.C] (key on R/C to exit from the PHASE mode.
(9) Press ASPECT key 2 times on R/C to write the phase data to memory.
(10) When Green dots are displayed, push [MUTE] key to return to DCU ADJ. mode.
(11) Push "SERVICE ONLY" SW to return to RF or VIDEO mode.

Normal Mode

PHASE MODE: N

PH-H :F4
PH-V: 07
CR-H: 35
CR-V: 14

2.3 Horizontal Position Adjustment (Coarse)

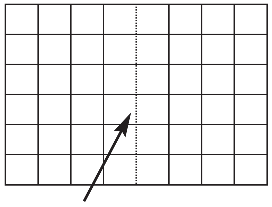
Adjustment preparation

(1) DCU PHASE DATA SETTING should be finished.

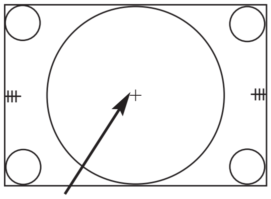
Adjustment procedure

(1) Receive circle pattern.
(2) Push SERVICE ONLY switch to display DCU crosshatch. Mark the DCU crosshatch center position using your finger tip.
(3) Push SERVICE ONLY switch again to exit from the DCU crosshatch.
(4) Go to I^{2}C ADJ. mode.
(5) Choose H. POSI item by using up/down cursor key. Adjust horizontal position to match the circle center to DCU crosshatch center (marked by your finger tip).
(6) Exit from I^{2}C menu.

DCU crosshatch



ATSC or NTSC Circle pattern



Remark The "SERVICE ONLY" switch located on the DEF./CONV. PWB.

1080i 16:9 STANDARD

(7) Receive any 1080i Signal (fH=33.75KHz) circle pattern signal (Input to component video terminal).
(8) Repeat steps (2)~(5).
(9) Press SELECT key, then H. POS H will appear. It means HD mode is activated.
(10) Exit from I^{2}C menu.

2.4 Raster Tilt adjustment (Deflection yoke)

Adjustment preparation

(1) The set can face east or west.
(2) Input the single cross test signal.
(3) Set CONTRAST to MAX, other controls to CENTER.
(4) The lens focus and horizontal position adjustment should have been coarse adjusted.
(5) The electrical focus should have been coarse adjusted.
(6) The digital convergence RAM should be cleared (uncorrected state). With the TV set off, press and hold the "SERVICE ONLY" switch and then press the power button.
(7) Start adjustment 20 minutes or more after TV is turned on.

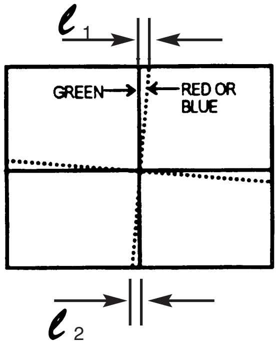
Adjustment procedure

(1) Short-circuit 2p EH (TS) sub-mini connectors on Red and Blue CPT P.W.B.s to project only the Green beam.
(2) Turn the G deflection yoke and adjust the vertical raster inclination.
(3) Then, remove the shorted wire on the 2p EH(TS) sub-mini connectors on the R or B CPT PWB and project red or blue light and green light together on screen.

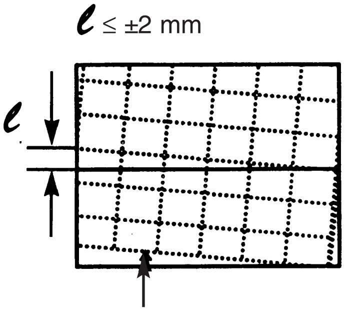
BACK TO ADJUSTMENTS

(4) Turn the deflection yoke of R or B and set so that the inclination of R or B light with respect to the green light is as shown below on the top and bottom sides.

(5) After raster inclination adjustment, the DY screw should be screwed to 10-14kg-cm torque.



$\ell_1, \ell_2 \leq \pm 2$mm



$\ell \leq \pm 2$ mm

CROSSHATCH (GREEN)

Notes: (1) If internal cross-hatch does not appear after clearing RAM data, press service switch again, on DEF./CONV. PWB.

(2) To restore old RAM data, turn TV off and on.

2.5 Beam alignment

Adjustment preparation

(1) Adjust at least 30 minutes after turning on power switch.

(2) Raster tilt should be completed. Raster position, horizontal and vertical size, and optical focus adjustment should be coarse adjusted.

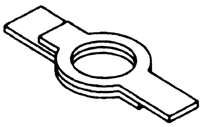
(3) Set video conditions to factory preset.

(4) Receive cross-hatch signal.

Adjustment procedure

(1) Green (G) tube beam alignment adjustment. Short-circuit TS (2p EH) subminiature connector plug pins of Red (R) and Blue (B) on the CPT boards and project only Green (G) light or you may cover the R and B lens.

(2) Put Green (G) tube beam alignment magnet to the cancel state as shown below.



(3) Turn the Green (G) electrical focus (Focus Pack) counterclockwise all the way and make sure of position of cross-hatch center on screen. (Halo state.)

(4) Turn the Green (G) electrical focus (Focus Pack) clockwise all the way. (Blooming state.)

(5) Turn two magnets forming alignment magnet in any desired direction and move cross-hatch center to position found in (3).

(6) If image position does not shift when Green (G) static focus (Focus Pack) is turned. Green (G) beam alignment has been completed.

(7) If image position shifts when Green (G) static focus (Focus Pack) is turned, repeat (2)-(6).

(8) Conduct beam alignment for red (R) and Blue (B) focus: Focus Pack UFPK.

(9) Upon completion of adjustment, fix beam alignment magnets with white paint.

2.6 Raster position adjustment

Adjustment preparation

(1) The set can face east or west.

(2) Input the single cross test signal.

(3) Set video conditions to factory preset.

(4) The electrical focus should have been coarse adjusted.

(5) The digital convergence RAM should be cleared (uncorrected state). With the TV set off, press and hold the service switch located on the DEF./CONV. PWB and then press the power button.

(6) Start adjustment 20 minutes or more after TV is turned on.

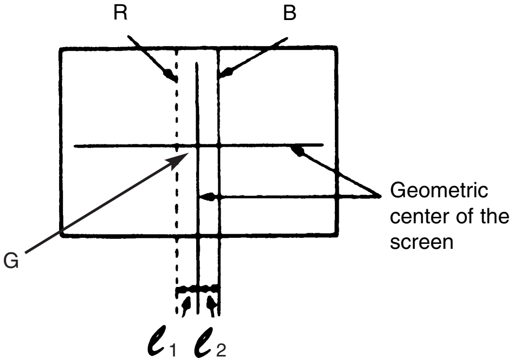
Adjustment procedure

(1) Turn the centering magnets for red, green, and blue to satisfy the condition below. The red and blue horizontal lines should match with green.

	ℓ_1 (RED)	ℓ_2 (BLUE)
51”	20	25
57”	20	25

Tolerance: ± 2mm

Units = millimeters
25.4mm = 1in.



(2) Upon completion of adjustment, fix centering magnets with white paint.

NOTES: (1) If internal cross-hatch does not appear after clearing RAM data, press service switch again.

(2) To restore old RAM data, turn TV off and on.

BACK TO ADJUSTMENTS

2.7 Beam form adjustment

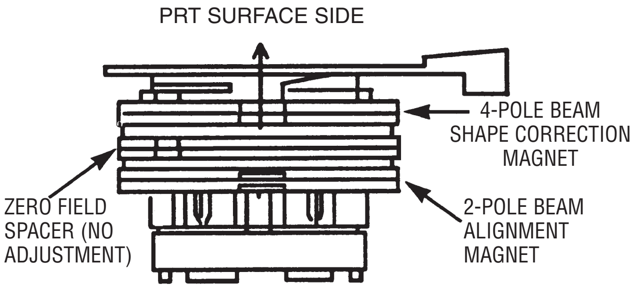
Adjustment preparation

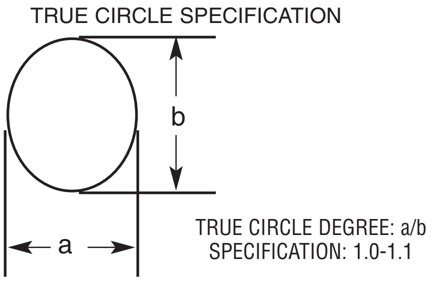
(1) Raster Position should have been completed.
(2) The raster tilt and centering should have been completed.
(3) Set video conditions to factory preset.
(4) Input the dot signal.
(5) Set Aspect to 4:3 Standard Mode.

Adjustment procedure

(1) Green PRT beam shape adjustment. Short-circuit TS (2p EH) sub-mini connectors on Red and Blue CPT P.W.B.s to project only the Green beam.
(2) Turn the green static focus VR, on the Focus Pack, fully clockwise. (Blooming)

(3) Make the dot at the screen center a true circle using the 4-pole magnet as shown below.
(4) Also adjust the Red and Blue PRT beam shapes according to the steps (1) to (3).
(5) After the adjustment has been completed, return R, G and B static VRs to the just focus point.
(6) After the BEAM FORM is completed, fix the BEAM FORM magnet with white paint.


PRT SURFACE SIDE
4-POLE BEAM SHAPE CORRECTION MAGNET
ZERO FIELD SPACER (NO ADJUSTMENT)
2-POLE BEAM ALIGNMENT MAGNET


TRUE CIRCLE SPECIFICATION
b
a
TRUE CIRCLE DEGREE: a/b
SPECIFICATION: 1.0-1.1

2.8 SIDE PIN DISTORTION & VERTICAL SIZE & HORZONTAL SIZE & TRAPEZOID DISTORTION ADJUSTMENT

Adjustment preparation

(1) Receive any NTSC signal.
(2) VIDEO control should be set Factory Preset condition.
(3) BEAM FORM adjustment should be finished.

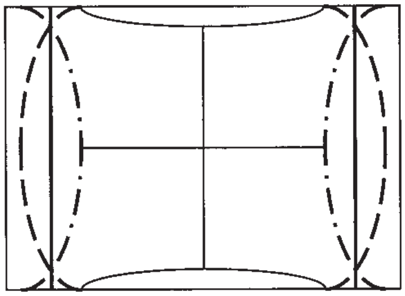
Adjustment procedure

NORMAL MODE

(1) With the unit on, and the R/C in DCAM mode.
(2) Press the service button and press the [MUTE] key on R/C at the same time. Uncorrected crosshatch is displayed.
(3) Press and hold the [MENU] key on the front panel for 3 seconds, then I²C menu is displayed.

SIDE PIN DISTORTION

(3) Choose "EW PARA" (SIDE PIN) item by using [MENU] key and ▼ key.
(4) Adjust SIDE PIN as follows using ◀, ▶ keys.



Left and right side edge of vertical DCU cross-hatch line should be straight condition.

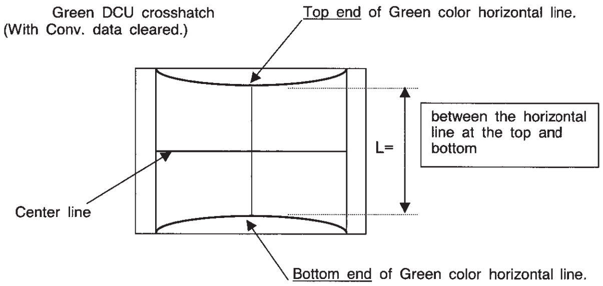
NOTE: If it's impossible to adjust the straight line, set a little pin condition.

VERTICAL SIZE

(5) Choose "V SIZE" item by using ▲, ▼ keys.
(6) Adjust V SIZE as follows using ◀, ▶ keys.

ℓ	V. Size Specification
51"	560
57"	625

Tolerance: ± 5mm
Units = mm

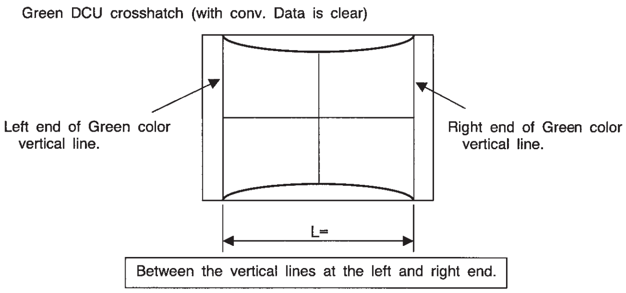

Green DCU crosshatch
(With Conv. data cleared.)
Top end of Green color horizontal line.
between the horizontal line at the top and bottom
L=
Center line
Bottom end of Green color horizontal line.

HORIZONTAL SIZE

(3) Choose "H SIZE" item by using▲, ▼ keys
(4) Adjust H SIZE as follows using ◀, ▶ keys.

ℓ	H. Size Specification
51"	1070
57"	1195

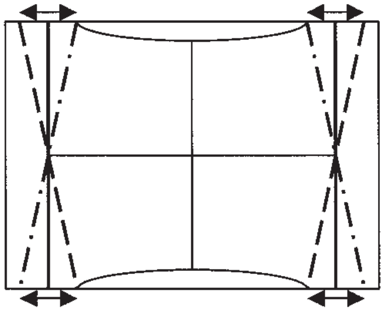
Tolerance: ± 5mm
Units = mm


Green DCU crosshatch (with conv. Data is clear)
Left end of Green color vertical line.
Right end of Green color vertical line.
L=
Between the vertical lines at the left and right end.

BACK TO ADJUSTMENTS

TRAPEZOID DISTORTION

(9) Choose “EW TRAP” (TRAPEZOID) item by using ▲, ▼ keys.
(10) Adjust TRAPEZOID as follows using ◀, ▶ keys.
(11) After adjustment, press [EXIT] key on R/C and SERVICE ONLY SW to exit from DCU Crosshatch.



Vertical Screen frame line & edge of vertical DCU cross-hatch line should be Prallel condition.

2.9 LENS FOCUS ADJUSTMENT

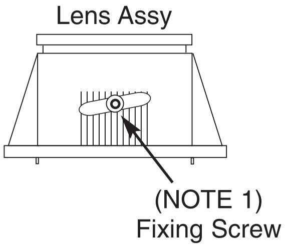
Adjustment preparation

(1) The orientation of PTV set is arbitrary, west, east, north and south.
(2) Centering DY inclination should have been adjusted.
(3) Static focus adjustment should have been coarse adjusted.
(4) Drive VR location adjustment should have been completed. (Red : 12 O’clock, Green : 1~2 O’clock).
(5) Receive the cross-hatch pattern signal.
(6) Refer to setup below.
CONTRAST : HALF of full scale.
BRIGHTNESS : minimum

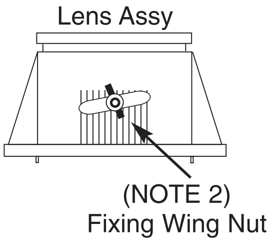
Adjustment procedure

(1) Loosen the fixing screw or wing nut on the lens cylinder so that the lens cylinder can be turned. (Be careful not to loosen too much). After completing steps (4), (5), (6) below, tighten the fixing screws or wing nuts for each lens with a torque of 1.18N.m (12Kgf cm) ~ 1.67N.m (17Kgf cm).

(Be careful the lens cylinder does not turn after having tightened the screw or wing nuts. If it is tightened too much, lens may tilt or screw may break.)

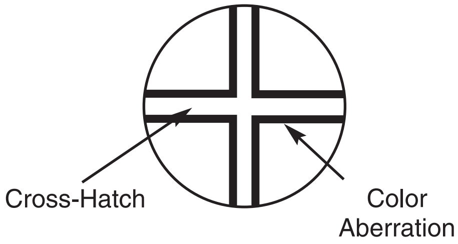


TYPE 1



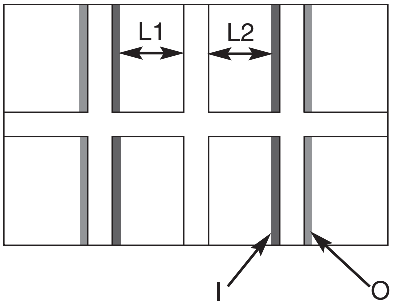
TYPE 2

(2) Apply covers to each color of R, G and B lenses. And project a single color on the screen and adjust in sequence. (The adjustment order of G, R and B is only an example.)
(3) If the lens adjustment knob is turned clockwise viewed from the front, the color Aberration change as follows.



	Change of Color Aberration	
	Short focus	Long focus
RED LENS	Orange	Scarlet
GREEN LENS	Blue	Red
BLUE LENS	Purple	Green

(4) In case of G lens. Set to the point where the chromatic aberration switches from blue to red. If the chromatic aberration appearing all over the screen is not the same, observe the vertical bright line and adjust lens focus as specified in table below. When the red chromatic aberration appearing at both sides of the bright line is not equal, observe the side with larger chromatic aberration when adjusting.



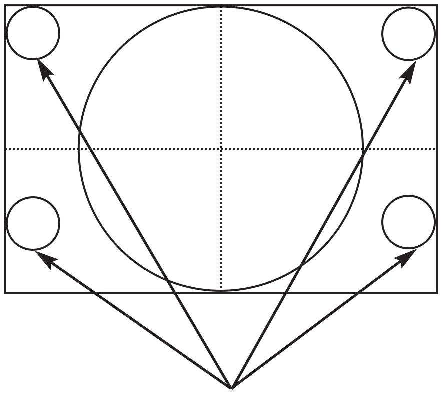
BACK TO ADJUSTMENTS

OPTICAL FOCUSING ADJUSTMENT GREEN

CHASSIS		DP47	
SCREEN SIZE		51”	57”
L1 and L2 (PITCHES from CENTER)		1.0	1.0
COLOR ABERRATION	BETWEEN L1&L2	*	*
	I	* 2.0mm MAX	* 3.0mm MAX
	O	** 2.0mm MAX	* 3.0mm MAX

(NOTE) * Slightly reddish or no color
** Slightly bluish or no color

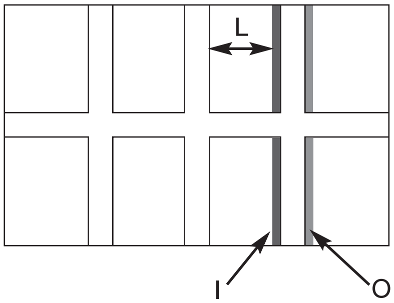
Change the signal to the circle pattern and fine adjust. Observe the corner part of the screen, especially observe number in the small circle when adjusting. If the focus performance at the screen center exceeds the lower limit, it is acceptable.



Small circle of circle pattern

NOTES: 1. Since the G light is very important for picture quality and performance, pay special attention in its adjustment.
2. Be careful not to touch the lens with your fingers when adjusting.

(5) In case of R lens. Set the position where the chromatic aberration changes from red to crimson. As shown below, observe the vertical bright line and adjust lens focus where the crimson or red chromatic aberration slightly appears inside, and crimson or red outside (reference value : 1~3mm) at the point specified in table below. Change the signal and fine-adjust the same way as the G lens.



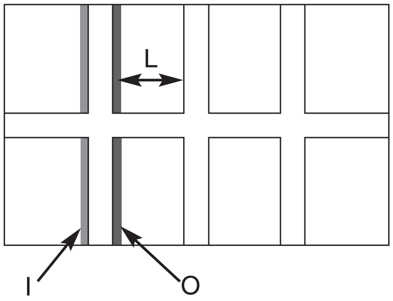
NOTE: Setting the center between Red and crimson is optimum.

OPTICAL FOCUSING ADJUSTMENT RED

CHASSIS		DP47	
SCREEN SIZE		51”	57”
L1 and L2 (PITCHES from CENTER)		3.0	3.0
COLOR ABERRATION	BETWEEN L1&L2	*	*
	I	* 2.0mm MAX	* 3.0mm MAX
	O	** 2.0mm MAX	* 3.0mm MAX

(NOTE) * Slightly reddish or no color
** Slightly crimson or no color

(6) In case of B lens. Set the position where the chromatic aberration changes from purple to green. As shown below, observe the vertical bright line and adjust lens focus where the purple or green chromatic aberration slightly appears inside and purple or green outside (reference value : 1~3mm) at the point specified in table below. Change the signal and fine-adjust in the same way as the G lens.



NOTE: Setting to the center between purple and crimson is optimum.

OPTICAL FOCUSING ADJUSTMENT BLUE

CHASSIS		DP47	
SCREEN SIZE		51”	57”
L1 and L2 (PITCHES from CENTER)		3.0	3.0
COLOR ABERRATION	BETWEEN L1&L2	*	*
	I	* 2.0mm MAX	* 3.0mm MAX
	O	** 2.0mm MAX	* 3.0mm MAX

(NOTE) * Slightly reddish or no color
** Slightly greenish or no color

(7) After all colors have been adjusted, display all colors with the cross-hatch pattern signal and check the focus performance.
(8) Then, select the circle pattern signal and check the focus performance of each color and all colors together.
(9) If the focus performance is not acceptable re-adjust step (1) to (6).

2.10 STATIC FOCUS ADJUSTMENT

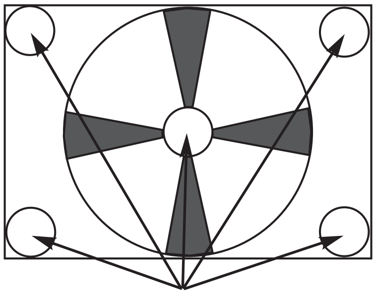
Adjustment preparation

(1) LENS FOCUS adjustment should be finished.
(2) Contrast : MAX
Brightness : Center.
(3) Receive the 480i/480p circle pattern signal & 1080i circle pattern.
(4) Apply covers to the lens of the colors you are not adjusting and project only one color on the screen.

Adjustment procedure

(1) Red and blue static focus adjustment. Adjust the static focus VR on Focus pack (UFPK) so that the center of circle pattern is the most clear. Check that the focus does not get conspicuously worse at the edges of the circle pattern signal or cross-hatch signal.
(2) Green static focus adjustment. Adjust the static focus VR on Focus pack (UFPK) (for green) so that the center of circle pattern is the most clear. Check that the focus does not get conspicuously worse at the checking point, the periphery of circle pattern cross-hatch signal.

NOTE: Checking point for the periphery of picture.



2.11 Digital convergence adjustment

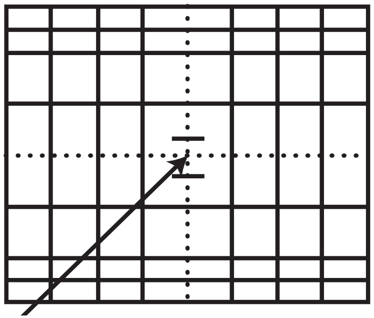
Note: 1. If replacing a PRT, DY, etc. perform auto-digital convergence first. (Press front panel MAGIC FOCUS switch). This can eliminate the need for a complete digital convergence alignment.

2. To enter digital convergence adjustment mode without removing the front speaker grill, please do the following:

1) Press “Magic Focus” button on the front panel.
2) While “Magic Focus” is running, press Magic Focus button again to “Stop”.
3) Press INFO button after “STOP” OSD appears on the screen to enter digital convergence mode.
4) Proceed with convergence adjustment and save the data.
5) Do MAGIC FOCUS sensor initialization.
6) To exit, press POWER button on the front panel.

Adjustment preparation

(1) Receive an RF or video signal.
(2) Set controls to factory preset.
(3) Install jig screen on the set.
(4) Note the center of the video pattern displayed. This is necessary to match dotted lines (adjustment point viewed) and actual point that is adjusted and displayed by the video signal.
(5) Press the service only switch (on DEF./CONV. PWB). The pattern displayed is now the digital convergence mode.
(6) When performing a complete digital convergence adjustment CLEAR DATA in RAM. (With the TV set off, press and hold the service switch located on the DEF./CONV. P.W.B. and then press the POWER button).



BACK TO ADJUSTMENTS

2.11.1 MAGIC FOCUS Character Set-Up

This instruction should be applied when a new DCU is being replaced.

Adjustment Preparation

1. (1) Receive NTSC RF or video signal.
2. (2) With Power off, PRESS and HOLD the SERVICE ONLY button on DEF./CONV. PWB, then press the Power On/Off, when picture appears release SERVICE ONLY switch (Internal crosshatch is displayed without conv. correction data).
3. (3) Set R/C to DCAM mode (refer to page 47).
4. (4) Press the DAY/NIGHT button 2 times for ROM READ operation. Picture will appear with convergence correction data.

Adjustment Procedure

1. (1) Press ► key on R/C. (One additional line appears near the top and near the bottom.)
2. (2) Press ■ key, then ADJ. PARAMETER mode is displayed as following.

```
ADJ. PARAMETER
ADJ. DISP.:     0F
DEMO WAIT:   1F
INT. START:    13
V. SQUEEZE:  10
```

3. (3) Press CURSOR PAD ◄ or ► to change the ADJ. DISP. data.
4. (4) Press CURSOR PAD ▼ to access DCU parameter. Change the data as shown on Table 1, DCU Parameter.
5. (5) Press Aspect key 2 times to write changed data into EEPROM. (First press ADJ. PARAMETER/ROM WRITE? is displayed for alarm. 2nd press, writes data into EEPROM. Green dots appear after completion of operation.)
6. (6) Press MUTE/VOLUME key 3 times to exit from ADJ. PARAMETER mode.

TABLE 1. - DCU PARAMETER

Parameter	Normal
ADJ. DISP	0F
DEMO WAIT	1F
INT. START	13
V. SQUEEZE	10
INT STEP 1	02
INT STEP 2	06
INT BAR	2D
INT DELAY	01
MGF STEP 1	50
MGF STEP 2	06
MGF BAR	1B
MGF DELAY	01
SEL. STAT.	00
LINE WID	7F
ADD LINE	09
SENSOR CK	00
PORT 0	07
PORT 1	06
PORT 2	05
PORT 3	04
PORT 4	03
PORT 5	02
PORT 6	01
PORT 7	00
AD LEVEL	03
CENT. BAL	01
E. DISPLAY	00
ADJ. TIMS	60
AD LEVEL	05
AD NOISE	0A
OVER. LF-H	01
OVER. LF-V	00
OVER. RI-H	00
OVER. RI-V	00
PHASE MOT	60
H. BLK-RV	0A
H. BLK-GV	03
H. BLK-BV	09
H. BLK-H	20
PON DELAY	0F
IR-CODE	00
INITIAL 50	9E
MGF 50	96
CENTER 50	FE
STAT 50	FE
DYNA 50	9F

BACK TO ADJUSTMENTS

2.11.2 MAGIC FOCUS Pattern Set-Up

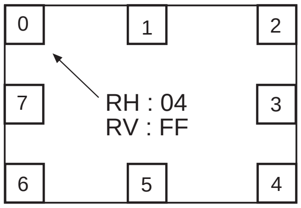
NOTE: (1) This instruction should be applied when a new DCU is being replaced.
(2) This instruction shows how to set up the pattern position for MAGIC FOCUS.

Adjustment Procedure

(1) Receive NTSC RF or video signal.
(2) With Power off, PRESS and HOLD the SERVICE ONLY button on DEF./CONV. PWB, then press the Power On/Off, when picture appears release SERVICE ONLY button (Internal crosshatch is displayed without conv. correction data).
(3) Set R/C to DCAM mode (refer to page 47).

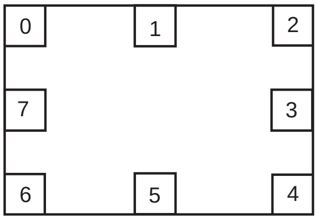
Adjustment Procedure

(1) Press ► key on R/C. (One addtional line appears near the top and near the bottom.)
(2) Press C.C. key, then MAGIC FOCUS PATTERN mode is displayed as follows:



(3) Use [6] key on remote control to rotate the arrow. Arrow indicates each sensor position. (Upper left corner, middle top, upper right corner, right middle, in this order).
(4) Use the keys to switch color of pattern.
INFO : Green pattern
0 : Red pattern
INPUTS : Blue pattern
(5) Press CURSOR PAD ◀ or ▶ to change the data value to the horizontal direction. Press CURSOR PAD ▲ or ▼ to change the data value to the vertical direction.
(6) Set the data as shown below:

Pattern Position



Pattern: 51" & 57" (Sensor: 20mm)
Normal Mode

	0	1	2	3	4	5	6	7
RH	04	00	fc	02	fc	00	04	fe
RV	ff	fe	01	00	fe	01	00	00
GH	04	00	fc	02	fc	00	04	fe
GV	ff	fe	ff	00	ff	01	00	00
BH	04	00	fc	02	fc	00	04	fe
BV	ff	fe	ff	00	00	01	ff	00

(7) Press ASPECT key 2 times to write the changed data in EEPROM. (First press, ROM WRITE ? 2nd press, writes data into EEPROM. Green dots appear after completion of operation.)
(8) Push POWER key (on control panel) to exit from PATTERN mode.

"Convergence For Outside Signal" function

a) Press Service Switch on DEF/Conv PWB, then display "Normal Crosshatch". (Fig. 1)

⇩

b) Press [MENU] key on R/C, then display "Red + Green Crosshatch with Red Marker" or "Green Crosshatch with Green Marker" or "Blue + Green Crosshatch with Blue Marker". (Fig. 2)

⇩

c) Press [MENU] key on R/C again, then display "Normal Crosshatch on Main Picture" (Fig. 3)

⇩

d) Press [MENU] key on R/C again, then display "Cross Marker + Box Marker on Main Picture". (Fig. 4)

⇩

e) Press [MENU] key on R/C again, then display "only Box Marker on Main Picture". (Fig. 5)

⇩

f) Press [MENU] key on R/C again, then display "Normal Crosshatch" again. (Fig. 1)

And repeat procedure b) ~ f) by each press [MENU] key on R/C.

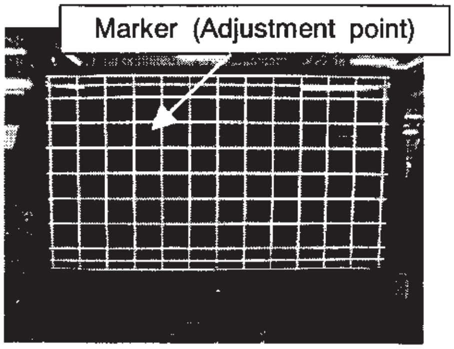


Fig. 1

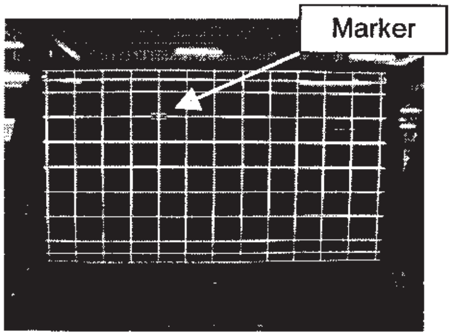


Fig. 2

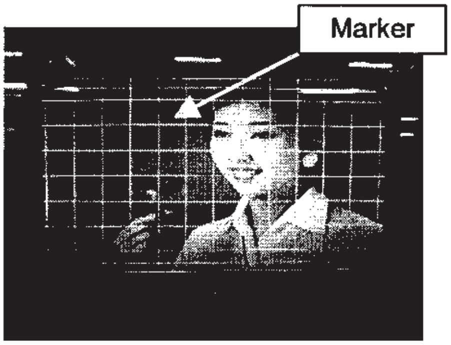


Fig. 3

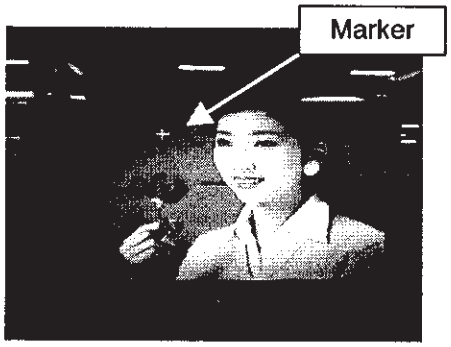


Fig. 4

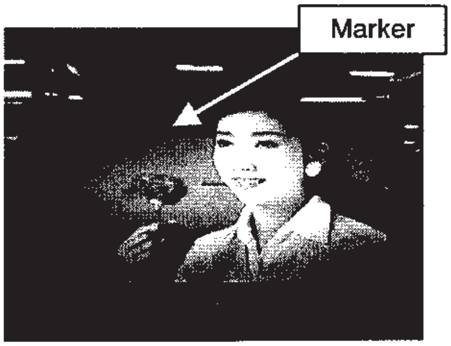


Fig. 5

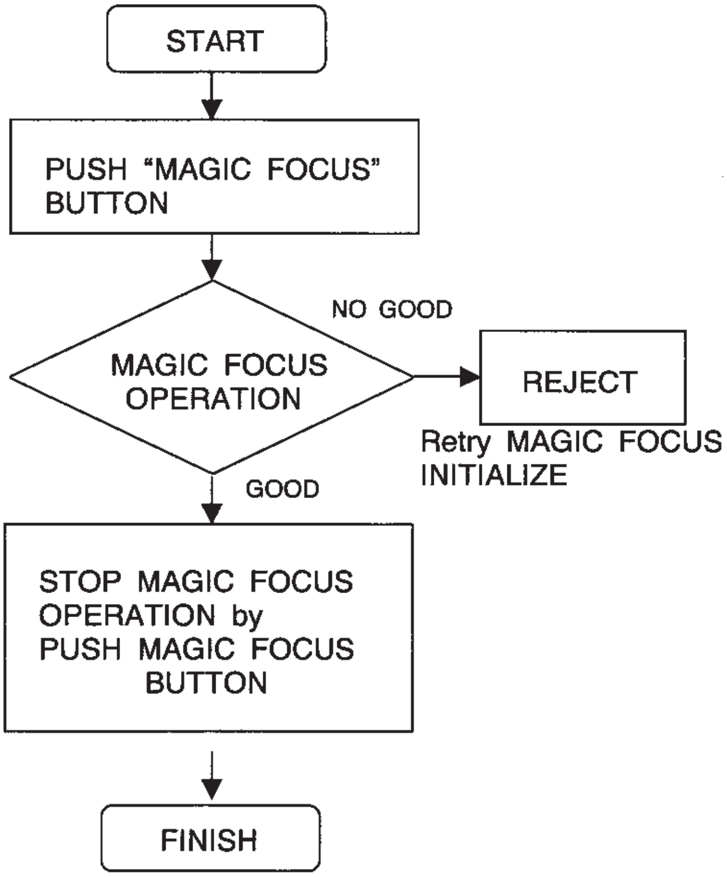
MAGIC FOCUS OPERATION CHECK

Adjustment preparation

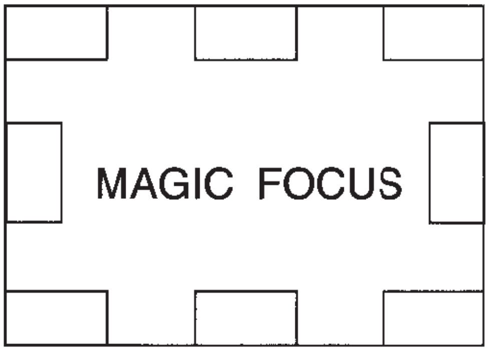
(1) MAGIC FOCUS INITIALIZE OPERATION should be completed.
(2) Receive any NTSC signal.

Adjustment procedure

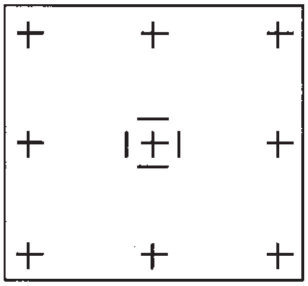
(1) OPERATION CHECK


START
PUSH "MAGIC FOCUS" BUTTON
MAGIC FOCUS OPERATION
NO GOOD
REJECT
Retry MAGIC FOCUS INITIALIZE
GOOD
STOP MAGIC FOCUS OPERATION by PUSH MAGIC FOCUS BUTTON
FINISH

MAGIC FOCUS OPERATION
*GOOD (Several windows)


MAGIC FOCUS

* NO GOOD (9 cross)



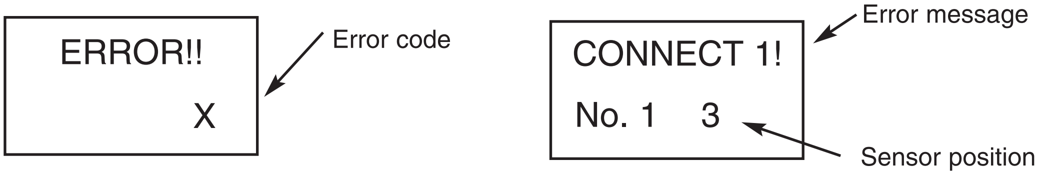
DP4X

Note:
If there is an error, error code (red) appears for about 1 second in bottom right corner.
Refer to CONVERGENCE ERRORS.

Convergence Errors.

If an error message or code appears while performing MAGIC FOCUS or initialize (ASPECT , ■ key in DCU service mode) follow this confirmation and repair method.

1. Turn on power and receive any signal.
2. Press service switch on DEF./CONV. board.
3. Set R/C to DCAM mode (refer to page 47).
4. Press “DAY/NIGHT” then ■ key on remote control.
5. Error code will be displayed in bottom right corner of screen. If there is no error, an “INITIAL OK” message will appear on screen.



6. Follow repair table for errors.

DCU REPAIR TABLE

Error Code	Error Display Code	Countermeasure	Application	
			Initialize	Magic Focus
1	VF Error	Replace DCU	X	X
2 *2	Connect 1	1. Darken Outside Light 2. Placing of sensor 3. Is pattern hitting sensor 4. Check connection and solder bridge of sensor 5. Replace sensor 6. Replace sensor P.W.B. 7. Sensor Connector check 8. Replace DCU 9. Adjustment check (H/V size, centering)	X	—
3*2	A/D Level	Same as Error Code 2	X	X
4	Over Flow	1. Check the placement of sensor 2. Adjustment check (H/V size, centering) 3. Conv. amp. gain check *1 (check resistor values only)	X	X
5	Convergence	Same as Error Code 4	X	X
7	Operation	Same as Error Code 4	—	X
9	Connect 2	Same as Error Code 2	X	X
10	Noise	Input strong field signal Check the wiring of connector between sensor and DCU	X	X
11	Sync	Input strong field signal Check the wiring of connetor between sensor and DCU	X	X

*1 -- RK 53, 54, 57, 58, 61, 62, 65, 66, 69, 70, 73 and 74 check these resistors.

*2 Sensor Position

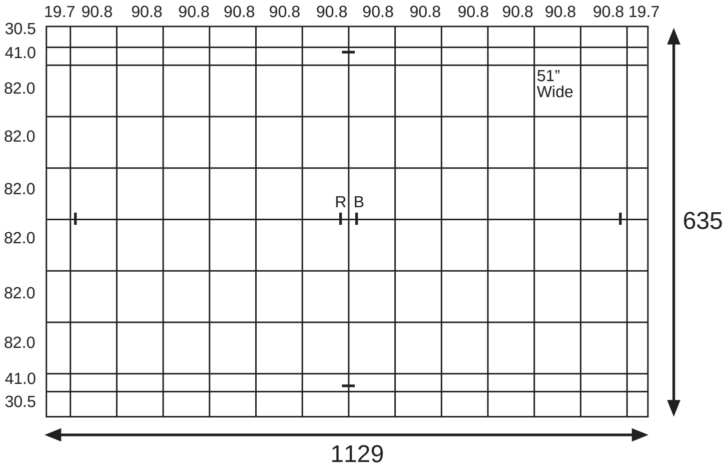
0	1	2
7		3
6	5	4

(View from front side)

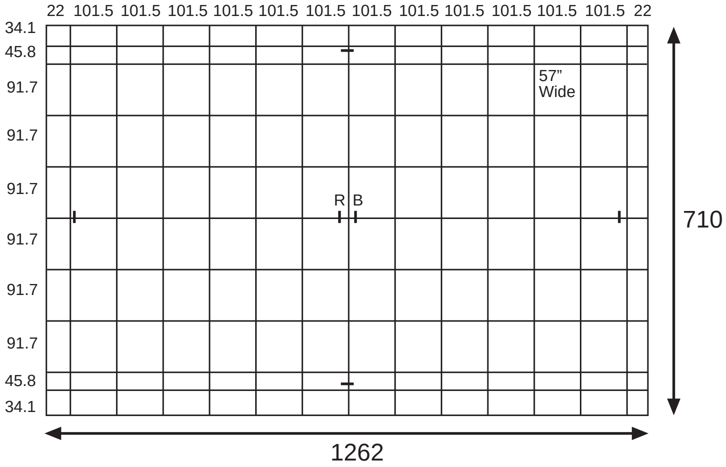
8 Sensors

2.11.3 Convergence Jig Screen Specifications

51S715 (Part Number H312272)


19.7 90.8 90.8 90.8 90.8 90.8 90.8 90.8 90.8 90.8 90.8 90.8 90.8 19.7
30.5
41.0
82.0
82.0
82.0
82.0
82.0
82.0
41.0
30.5
51"
Wide
R
B
635
1129

57S715 (Part Number H312273)


22 101.5 101.5 101.5 101.5 101.5 101.5 101.5 101.5 101.5 101.5 101.5 101.5 22
34.1
45.8
91.7
91.7
91.7
91.7
91.7
91.7
45.8
34.1
57"
Wide
R
B
710
1262

BACK TO ADJUSTMENTS

Note: If only minor adjustments to convergence are needed, the jig screen is not necessary. Use digital data stored in memory and one color as a reference (red, green, or blue). DO NOT CLEAR DATA and WRITE to ROM memory.

2.11.4 Raster position adjustment (minor)

Adjustment preparation

(1) Position adjustment - This will move an entire color. Use this adjustment to match colors at the center of the screen. (Active video center from external signal and physical screen center should now match from phase adjustment).

(2) Use the buttons below to switch color to adjust.
"INFO" - Green
"0" - Red
"INPUTS" - Blue

Adjustment procedure

(1) Press the ► button. Extra horizontal lines appear to confirm raster position mode.

(2) Use the thumb stick to adjust position.

(3) Press ► again to exit raster position mode.

Notes: (1) Other functions cannot be accessed when in raster position adjustment mode. Press ► and confirm extra horizontal lines disappear to exit raster position mode.

(2) Press MENU to remove all colors displayed.

2.11.5 Convergence point adjustment

Adjustment preparation

(1) Select color to adjust.
"INFO" - Green
"0" - Red
"INPUTS" - Blue

(2) Use 4, 6, 2, and 5 to move the cursor position (dotted lines).

(3) Use thumb stick to move the convergence point.

(4) Three adjustment modes are available:
 1. (3x3) Press "INFO" 5 times (only works when DCU is in uncorrected state)
 2. (7x5) Press "0" 5 times
 3. (13x9) Press "INPUTS" 5 times

For touch-up, only the (13x9) mode is necessary. This will adjust every cross-hatch intersection point on the screen.

For complete adjustment, start with (3x3) mode. This will adjust center point and eight edge points only, but will greatly reduce adjustment time. Then use (7x5) mode, and finally (13x9) mode to finish convergence.

If "S" distortion appears between cross-hatch lines repeat (7x5) mode to change calculation process while adjusting to remove distortion, then return to (13x9) mode to finish touch-up convergence.

Adjustment procedure

(1) Receive any NTSC signal.

(2) Start adjustment at the center of the screen.

(3) Continue adjustment at next closest position.

(4) Adjust center area first, ending with edge sections.

(5) Press GUIDE button to perform calculation operation. This process will take about 1 second and no picture will be seen at this time.

(6) After interpolation, check convergence again and repeat (1)-(5) if necessary.

(7) When convergence is acceptable, press ASPECT to write data to ROM memory. ROM WRITE? is displayed to alarm system that ROM will be overwritten with new data. Press the ASPECT button again to write displayed data to ROM.

(8) DATA WRITE TO ROM will take approximately 4 seconds and no picture will be displayed.

(9) Green dots will be displayed when operation is completed.

(10) Push VOLUME down to MUTE to return to convergence pattern, then confirm again convergence is acceptable.

(11) Press ASPECT (ROM WRITE) mode, then press ■ to initialize sensor data positions.

Notes: (1) Display only green for easier adjustment and match to jig screen. Press "MENU", THEN PRESS "INFO".

(2) Perform interpolation and data write to ROM after green adjustment. Once green has been confirmed to match jig screen, the jig screen can be removed. Do not readjust the green color after jig screen has been removed. This is now your reference color.

(3) Display green and red only and match red to green.

(4) Display all colors and match blue to green and red. Touch-up red color if necessary.

(5) Existing DATA in ROM can be read by pressing the DAY/NIGHT button 2 times. This data can be used after replacing a component (CRT, DY, etc.) Where complete convergence adjustment is not necessary, be careful not to overwrite this data.
DO NOT write cleared RAM data into ROM or a complete convergence adjustment will be necessary. Remember to try MAGIC FOCUS before starting convergence adjustment to minimize adjustment time.

(6) To confirm and fine tune the convergence at the edge of the screen, press the ■ button on the remote control while in the digital convergence adjustment mode (DCAM) for additional lines at the edge of the screen. Fine tune the edge convergence as necessary. To exit, press ■ again.

BACK TO ADJUSTMENTS

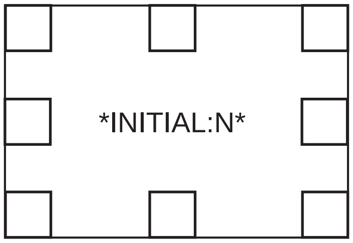
2.11.6 Magic Focus Initialize

Adjustment Preparation

(1) Receive any NTSC signal.
(2) Digital convergence adjustment should have been completed.
(3) Set is in DCU adjustment mode.
(4) Set R/C in DCAM mode.

Adjustment Procedure

(1) Press "ASPECT" and then ■ to initialize Magic Focus. The initialize operation starts and several windows appear during this operation. It takes about 30 seconds or less.
(2) When green dots appear, initialize operation is finished.
(3) Turn power OFF on TV set.



Initialization Operation

REMARKS

Another way to start the initialize operation:

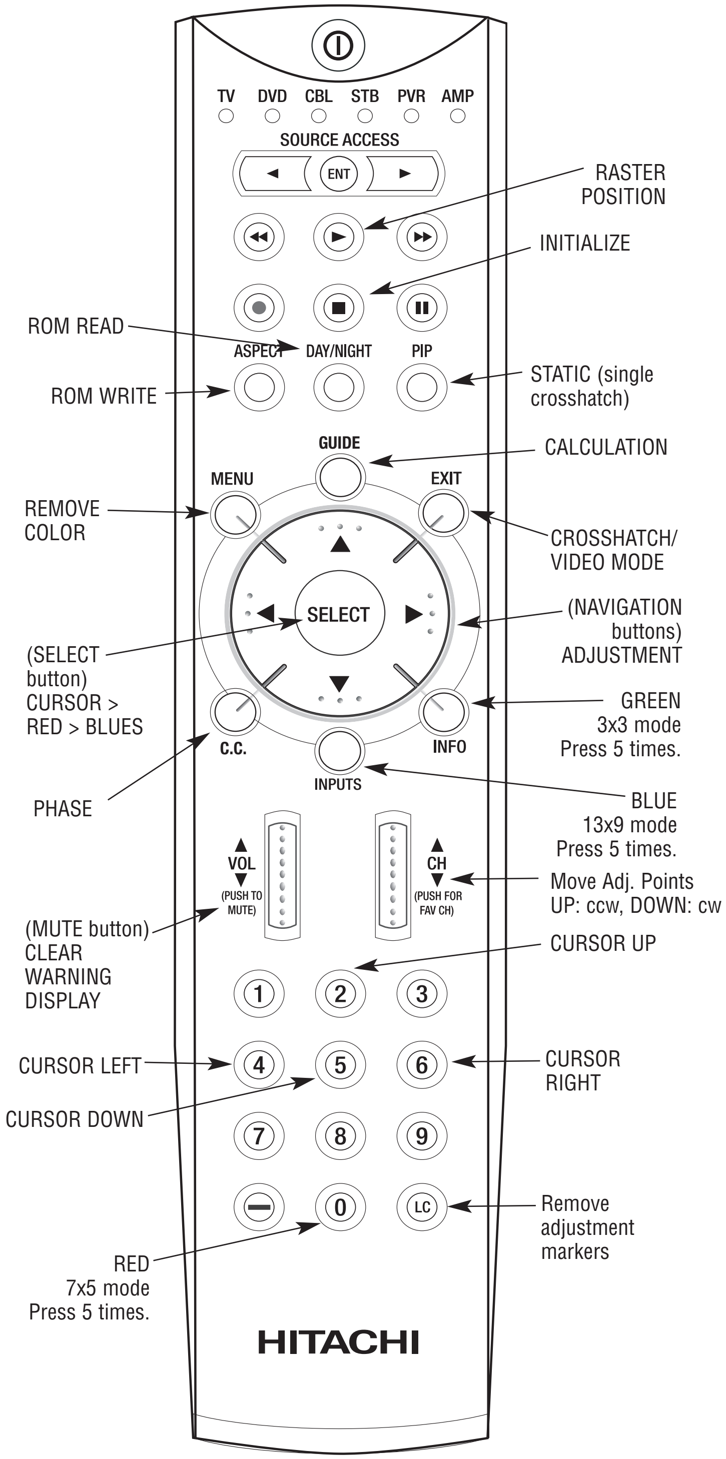
(1) Press "SERVICE ONLY" Sw. on DEF./CONV. PWB to set DCU adj. mode.
(2) Press [ASPECT] key on R/C. Then "ROM WRITE?" is displayed for alarm. Next, press ■ key on R/C to start initialization. When green dots appear, initalization operation is finished.

NOTE: If there is an error message, red dots or an error code, refer to page 44, CONVERGENCE ERRORS.

HITACHI DCU ADJUST SPECIAL MODE

(1) HITACHI DCU Adjust Mode is intended for service use only. Customers should not be given access to this mode.
(2) To place the remote control into DCU Adjust Mode use the following steps:
    a. Set the R/C to TV mode.
    b. While holding down the key "ENT", "MENU" then "INFO" keys.
    c. If the command is successful the TV LED will blink 3 times.
(3) See DCU mode table for IR codes associated with this mode.
(4) To exit the DCU Adjust Mode, the user must program the R/C of TV mode to the Hitachi device (pre-code #1345). Hold down the ENT key, then enter 1, 3, 4, 5 to set R/C to normal TV mode.

Digital Convergence Remote Control


TV
DVD
CBL
STB
PVR
AMP
SOURCE ACCESS
ENT
RASTER POSITION
INITIALIZE
ROM READ
ASPECT
DAY/NIGHT
PIP
ROM WRITE
STATIC (single crosshatch)
GUIDE
CALCULATION
MENU
EXIT
REMOVE COLOR
CROSSHATCH/ VIDEO MODE
SELECT
(NAVIGATION buttons) ADJUSTMENT
(SELECT button) CURSOR > RED > BLUES
GREEN 3x3 mode Press 5 times.
C.C.
INFO
INPUTS
PHASE
BLUE 13x9 mode Press 5 times.
VOL
(PUSH TO MUTE)
CH
(PUSH FOR FAV CH)
Move Adj. Points UP: ccw, DOWN: cw
(MUTE button) CLEAR WARNING DISPLAY
CURSOR UP
1
2
3
CURSOR LEFT
4
5
6
CURSOR RIGHT
CURSOR DOWN
7
8
9
0
LC
Remove adjustment markers
RED 7x5 mode Press 5 times.
HITACHI

NOTE: If the R/C is left in DCAM, the many TV controls will not work. To check, see if the mode selection can be made. It can not be move out of TV mode, then R/C needs to return to TV mode. Press and hold ENT key and enter 1, 3, 4, 5.

BACK TO ADJUSTMENTS

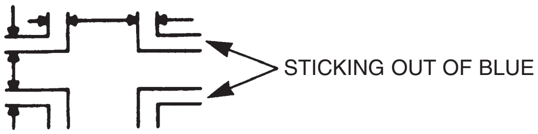
2.12 Blue Defocus adjustment

Adjustment Preparation

(1) Optical and electrical focus adjustment should have been completed.
(2) The convergence adjustment should have been completed.
(3) Set Video conditions to factory preset.
(4) Input the cross-hatch signal.

Adjustment procedure

(1) Turn the B Focus VR (Focus Pack) fully clockwise.
(2) Adjust sticking out level of blue to specification shown in table below, by turning the (B) FOCUS VR counter clockwise.



UNEVENNESS SPECIFICATION: ±1cd/m^2

Defocus sticking out specification

Screen Size	Blue sticking out
51”	1.0mm
57”	1.0mm

Condition: User controls are set to the initial set positions (for shipment)

Measuring point-Screen center.

2.13 White balance adjustment

(1) Screen adjustment
(2) High light white balance.
(3) Low light white balance.

I²C data for High light white balance

Green : G DRIVE (HIGH) 3F (initial data)(Adjustable)
Red : R DRIVE (HIGH) 3F (initial data)(Adjustable)

I²C data for Low light white balance

Green : G CUT OFF (HIGH) 7F (initial) (Fixed data)
Red : R CUT OFF (HIGH) 7F (initial) (Adj. data)
Blue : B CUT OFF (HIGH) 7F (initial) (Adj. data)

Adjustment Preparation

(1) Adjustment should start 20 min. or more after the TV power is turned ON.
(2) CUT OFF ADJ. should be finished.
(3) VIDEO control : Contrast is MAX., Others are center.
(4) Color temp. : HIGH
(5) Signal:
    - * Hight Light white Balance Adj.
      White raster 0.715Vpp (w/o sync., termination incidence : 75ohm.) 100IRE
    - * Low Light white balance ADJ.
      White raster 0.180Vpp (w/o sync., termination incidence : 75ohm.) 25 IRE (The brightness equal to 20cd/m² at screen center.
(6) BLUE defocus ADJ. should be finished.
(7) The vertical incident illumination on the screen should be 20 Lux. or less.
(8) Picture Format is 16:9 Standard Mode.
(9) Go into I²C service mode.

Table 1: White Balance Adjustment Signal

Screen Size		51” and 57”
High light	[IRE]	100
	[Vpp]	0.715
Low light	[IRE]	25.0
	[Vpp]	0.175

Table 1 shows amplitude of White raster (without sync, termination impedence: 75ohm).

Table 2: White Balance Adjustment Specification

Size	Highlight	Lowlight
51”	10800K±0MPCD (x=0.277 ± 0.004, y=0.284 ± 0.004)	10800K±0MPCD (x=0.277 ± 0.004, y=0.284 ± 0.004)
57”	10800K±0MPCD (x=0.277 ± 0.004, y=0.284 ± 0.004)	10800K±0MPCD (x=0.277 ± 0.004, y=0.284 ± 0.004)

Adjustment Procedure

A. High Light W/B adjustment

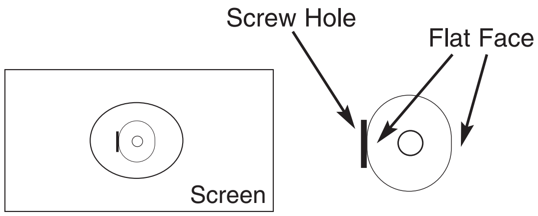
(1) Receive signal for High Light white balance ADJ.
(2) Adjust white balance at center of screen, using R DRV/ G DRV within I²C adjust mode (see Table 2).

B. Low Light W/B adjustment

(1) Receive signal for Low Light white balance ADJ.
(2) Adjust white balance to center of screen, using R CUT OFF/G CUT OFF/B CUT OFF within I²C adjust mode. Do not touch screen VRs (see Table 2).
(3) Take Green color as a reference color, then adjust Low Light W/B by increasing other two colors CUT OFF data. Do not change GREEN CUT OFF data. CA-100 Probe should be set to a direction as shown below.

Repeat A & B two or three times, until no adjustment is needed (white balance tracking-GOOD). If W/B tracking is not good, set all data (Both DRV and CUT OFF) to inital data, and change reference color to different color.

Note: If Low Light adj. spec cannot be followed, apply previous adj. spec. (adjust by eye.)



Set probe to above direction.
(Screw hole side should
be on the left side)

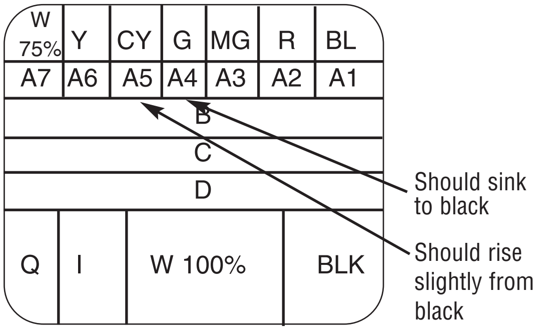
Top view of
CA-100 Probe

BACK TO ADJUSTMENTS

2.14 Sub brightness adjustment

Adjustment preparation

(1) Start adjustment after the power is turned ON for 20 minutes or more.
(2) Receive the color bar signal.
(3) The vertical incident illumination on the screen should be 20 lux or less. (Room should be dark).
(4) Picture Formats is 16:9 Standard Mode.

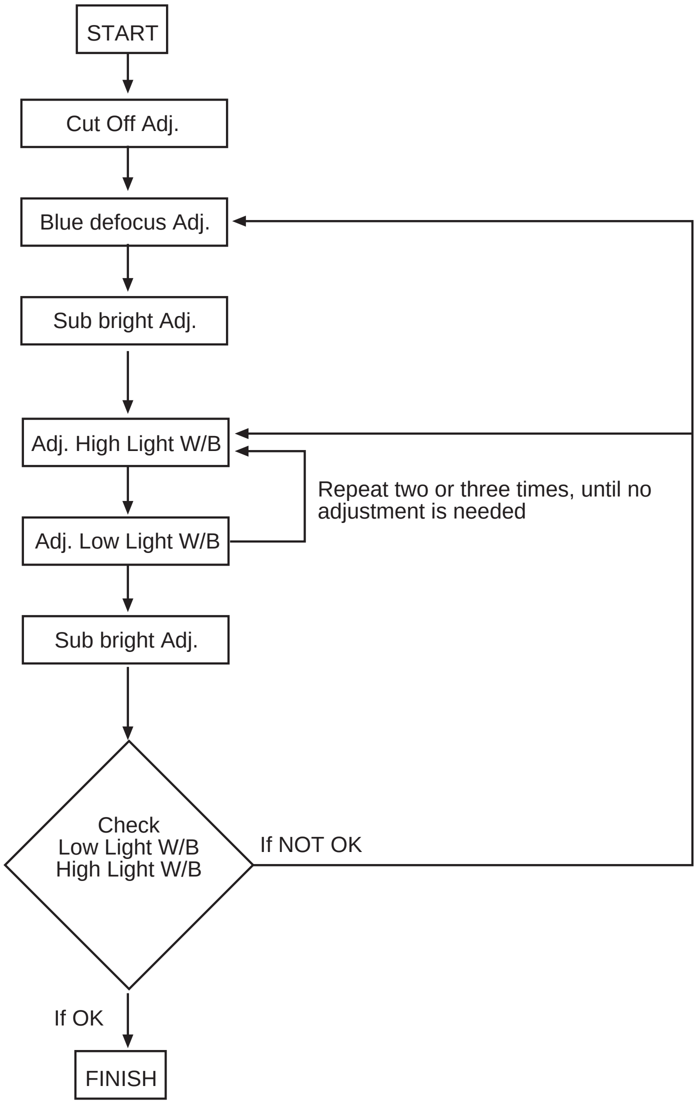

W 75%
Y
CY
G
MG
R
BL
A7
A6
A5
A4
A3
A2
A1
B
C
D
Q
I
W 100%
BLK
Should sink to black
Should rise slightly from black

Adjustment procedure

(1) Go to "Sub Brightness" adjustment in I^{2}C ADJUST mode (press Input and Power button on Control panel at same time), using CURSOR ▲, ▼ and then CURSOR ▶.
(2) Then adjust "Sub Brightness" using CURSOR ◀, ▶ to increase or decrease the value, according to figure. (Visually adjust).
(3) After adjustment, press MENU button to exit I^{2}C ADJUST mode. (Data is stored in memory).

Note: When selecting SUB-BRIGHTNESS mode the microprocessor sets the CONTRAST and COLOR to MIN. automatically, but make sure that the other conditions are center.
Directly observe the screen by eye without using a mirror.

WHITE BALANCE ADJUSTMENT FLOW CHART


START
Cut Off Adj.
Blue defocus Adj.
Sub bright Adj.
Adj. High Light W/B
Adj. Low Light W/B
Repeat two or three times, until no adjustment is needed
Sub bright Adj.
Check Low Light W/B High Light W/B
If NOT OK
If OK
FINISH

BACK TO ADJUSTMENTS

2.15 Sub Picture Signal Amplitude Adjustment

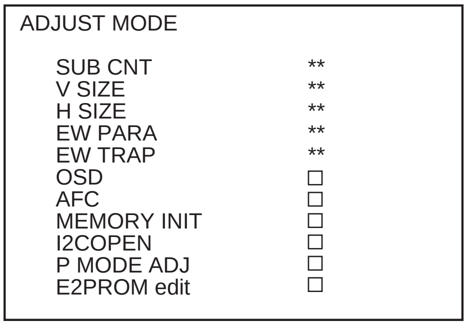
Adjustment preparation

(1) Sub-brightness adjustment should be finished.
(2) Start adjustment about 20 minutes after the power switch is turned on.
(3) Condition should be as follows:
Contrast : Max
Brightness : Center
(4) Press PIP button on R/C unit. Select Split mode.
(5) Receive ANT A NTSC white signal (amplitude 1. 0Vp-p), main-picture and sub-picture. (Do not use Video/S-Video/YPBPR/DVI.)
(6) Connect probe on the P852(CPT P.W.B.-Green) to check sub-picture amplitude.

Adjustment procedure

(1) Go to "SUB CONT(TV-S)" adj. on the I²C service mode.
(2) Press "PIP" button and "PIP Mode" button of R/C.
(3) Observe P852 on the CPT P.W.B. and change the "SUB CONT(TV-S)" I²C data so that the amplitude of the sub-picture is the same level as that of the main picture.

DISPLAY

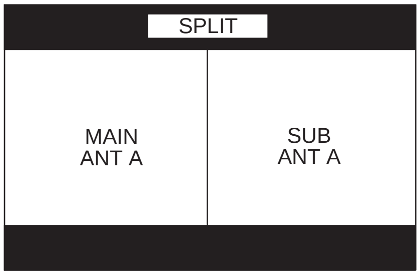


ADJUST MODE

SUB CNT **
V SIZE **
H SIZE **
EW PARA **
EW TRAP **
OSD ☐
AFC ☐
MEMORY INIT ☐
I2COPEN ☐
P MODE ADJ ☐
E2PROM edit ☐

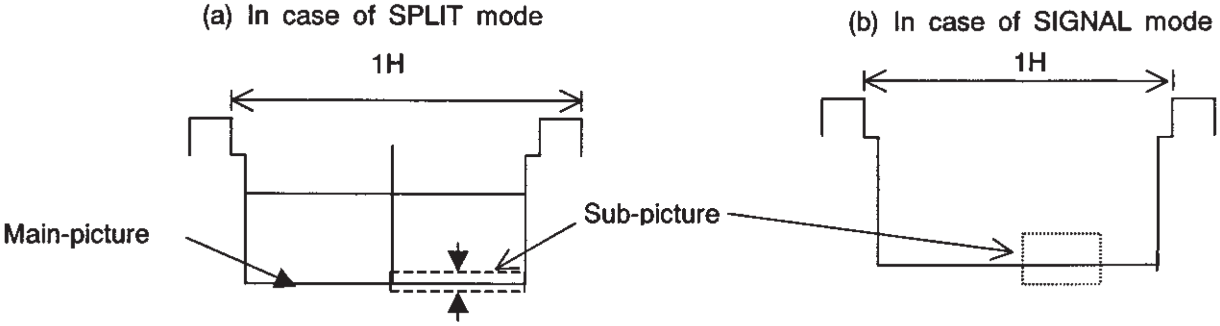
Main Picture

Press "PIP" button and "PIP Mode" button



Main Picture

Wave form of P852 (Green Cathode)



(a) In case of SPLIT mode

(b) In case of SIGNAL mode

Adjustment specification : ±1V
Quality control specification : ±3V

(Sub-picture level compared with main-picture level.)
(Oscilloscope range:10V/5usec)

BACK TO ADJUSTMENTS

2.16 Horizontal position adjustment

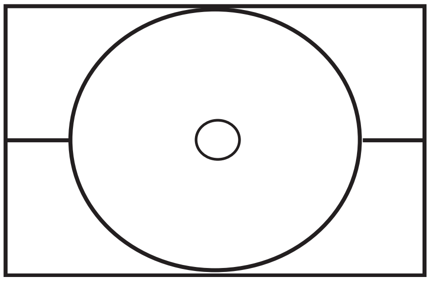
Adjustment preparation

(1) The screen face of set should be turned to East or West.
(2) VIDEO control should be set to Factory Preset Condition.
(3) DIGITAL CONVERGENCE adjustment should be finished.

Adjustment procedure

NORMAL 16:9 STANDARD MODE

(1) Receive circle pattern.
(2) Picture Format is 16:9 Standard.
(3) Go to I²C Adj. mode by pressing INPUT and POWER button on control panel at the same time.
(4) Choose H. POSITION item using R/C THUMBSTICK ▲,▼.
(5) Adjust HORIZONTAL POSITION as follows, using R/C THUMBSTICK ◀,▶.

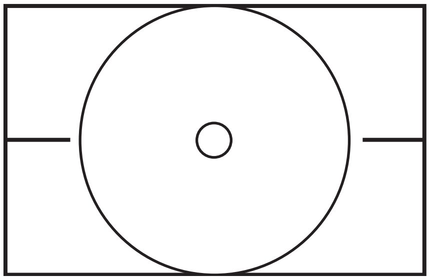


Spec: Balance Left/Right side display position.
H. size marker 1.0~2.0.

Adjustment procedure

1080i 16:9 Standard Mode

(1) Input 1080i (fH=33.75KHz) component circle pattern signal to component video terminal.
(2) Picture Format is 16:9 Standard.
(3) Go to I²C Adj. mode.
(4) Choose H. POSITION item using R/C THUMBSTICK ▲,▼.
(5) Adjust HORIZONTAL POSITION as follows, using R/C THUMBSTICK ◀,▶.



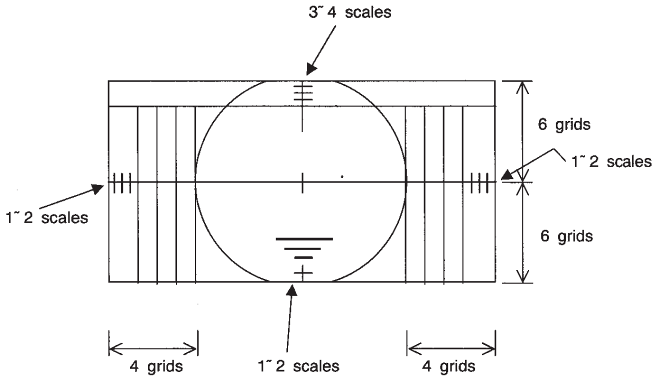
Spec: Balance Left/Right side display position.

2.17 Scanning area check

Checking condition

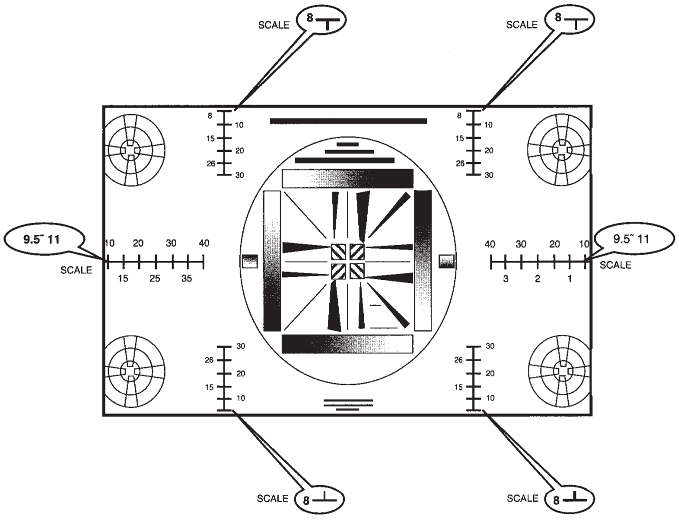
(1) Digital convergence adjustment should have been completed.
(2) Receive the circle pattern signal.
(3) Brightness/Contrast - standard condition
Contrast:max
Other controls:center position
(4) Check that the scanning area matches with the following drawing.

Receive 1080i circle pattern No. 59 of LT1611*, LT1608* of LEADER signal generator.



- LT1611 : Programmable Video Generator
- LT1608 : Video Encoder

Receive 1080i circle pattern of LT-449 (Leader)



BACK TO ADJUSTMENTS

2.18 TOP & BOTTOM PANEL DISTORTION CHECK

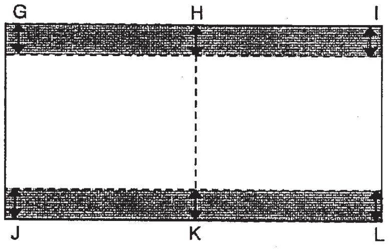
Measuring Condition

(1) Measure it after 20 minutes or later of the picture appearance.

(2) Display NTSC.
Contrast: Max, Brightness: Center

(3) Press [PIP] key on remote controller to select "SPLIT" mode as shown below.

(4) Measure Top & Bottom panel width as shown.



SPLIT mode

Specification : Top & Bottom distortion ··· Value shown in the following table or less.
(Unit : mm)

Pincushion distortion	46"	51"	57"	65"	Remarks
G — H H — I	±1.5	±2.0	±2.0	±2.5	
J — K K — L	±1.5	±2.0	±2.0	±2.5	

Trapezoidal distortion	46"	51"	57"	65"	Remarks
G — I	±1.0	±2.0	±1.5	±2.0	
J — L	±1.0	±2.0	±1.5	±2.0	

2.19 -SIDE PANEL DISTORTION AND TOP & BOTTOM PANEL DISTORTION CHECK

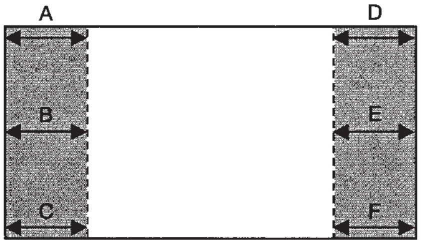
SIDE PANEL DISTORTION CHECK

Measuring Condition

(1) Measure it after 20 minutes or later of the picture appearance.

(2) Display NTSC Hitachi circle pattern signal, set Aspect to 4:3 standard mode.
Contrast: Max, Brightness: Center

(3) Measure side panel width as shown below A ~ F.



4:3 standard mode

Specification : Side panel distortion ··· Value shown in the following table or less.
(Unit : mm)

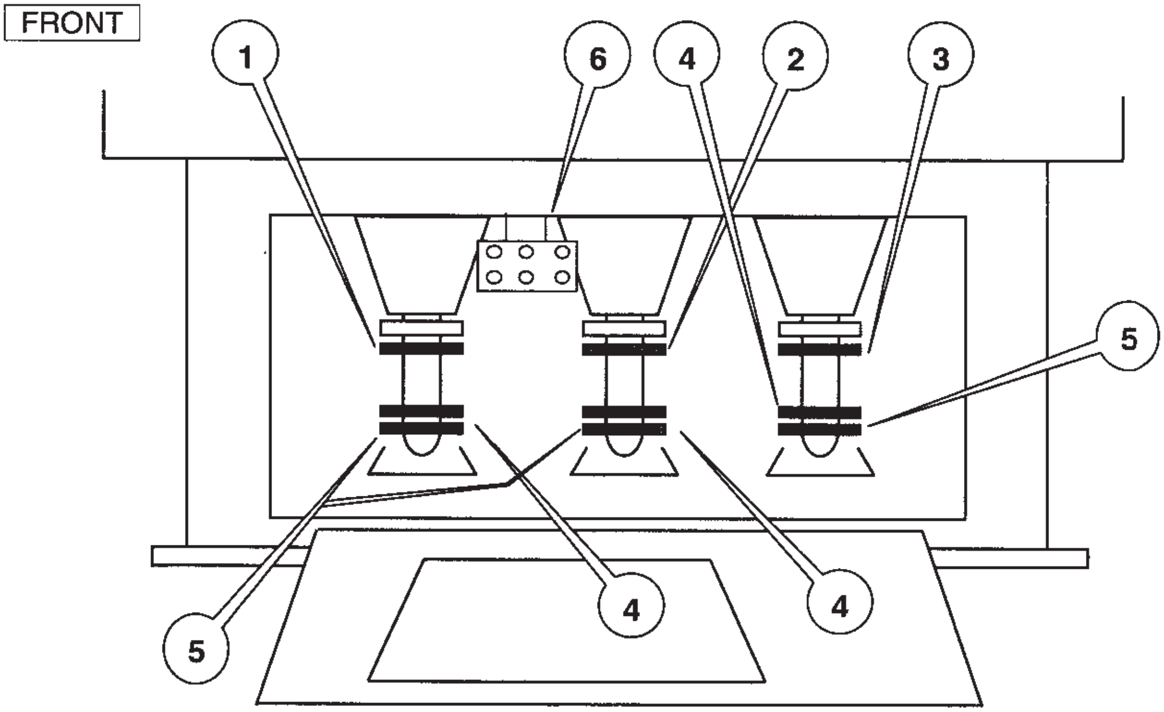
Pincushion distortion	46"	51"	57"	65"	Remarks
A — B B — C	±2.0	±2.5	±2.5	±3.0	
D — E E — F	±2.0	±2.5	±2.5	±3.0	

Trapezoidal distortion	46"	51"	57"	65"	Remarks
A — C	±1.5	±2.0	±2.0	±2.5	
D — F	±1.5	±2.0	±2.0	±2.5	

NOTE: If any of the above is not within specification, re-adjust side pin distortion and trapezoid distortion page 36-37 and adjust convergence.

BACK TO ADJUSTMENTS

2.19.1. ADJUSTMENT POINT
CRT, cabinet locations



1. CENTERING MAGNET FOR RED PRT
2. CENTERING MAGNET FOR GREEN PRT
3. CENTERING MAGNET FOR BLUE PRT
4. 4-POLE MAGNET FOR BEAM FORM ADJUSTMENT
5. BEAM ALIGNMENT MAGNET
6. FOCUS PACK

BACK TO ADJUSTMENTS

2.20 I2C Parameter List

Adjustment Mode OSD	Adjustment Item		Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
SERVICE	SERVICE			OFF	
TA1360 (88H)					
SUB BRIGHT	Sub Brightness		3C~FF	7F	
WHITE BAL	White Balance Mode (TA1360 88H)				
G DRIVE(HIGH)	Green Drive Gain Adjustment	High	00~7F	3F	
G DRIVE(MED)	00: .5 dB~ 7F: +3dB	Medium		4A	
G DRIVE(STD)	Data(M) = High + Medium – 3F	Standard		52	
G DRIVE (B/W)	Data(S) = High + Standard – 3F	Black/White		58	
	Data (B) = High + B/W – 3F				
R DRIVE(HIGH)	Red Drive Gain Adjustment	High	00~7F	3F	
R DRIVE(MED)	00: .5 dB~ 7F: +3dB	Medium		4E	
R DRIVE(STD)	Data(M) = High + Medium – 3F	Standard		56	
R DRIVE (B/W)	Data(S) = High + Standard – 3F	Black/White		64	
R CUTOFF(HIGH)	Red Cutoff Adjustment	High	00~FF	7F	
R CUTOFF(MED)	00: 1.9 V~ FF: 2.9 V	Medium		7F	
R CUTOFF(STD)	Data(M) = High + Medium – 7F	Standard		7F	
R CUTOFF (B/W)	Data(S) = High + Standard – 7F	Black/White		7F	
G CUTOFF(HIGH)	Green Cutoff Adjustment	High	00~FF	7F	
G CUTOFF(MED)	00: 1.9 V~ FF: 2.9 V	Medium		7F	
G CUTOFF(STD)	Data(M) = High + Medium – 7F	Standard		7F	
G CUTOFF (B/W)	Data(S) = High + Standard – 7F	Black/White		7F	
B CUTOFF(HIGH)	Blue Cutoff Adjustment	High	00~FF	7F	
B CUTOFF(MED)	00: 1.9 V~ FF: 2.9 V	Medium		7F	
B CUTOFF(STD)	Data(M) = High + Medium – 7F	Standard		7F	
B CUTOFF (B/W)	Data(S) = High + Standard – 7F	Black/White		7F	
H POSITION	Horizontal Position Adjustment	Normal	00~7F	42	
H POSITION H	00: .10%~ 7F: +10%	Bypass		3D	
	Data(H) = H POSI + H POSI H – 3F				
FLEX					
VD POSITION	Vertical Position		00~7F	3F	
FACTORY RESET					
TA1270-Sub (2CH)					
SUB-CNT	Sub Contrast Control 00: MIN(-3dB), 1F: MAX(+3dB)		00~1F	11	
TA1317 (8CH)					
V SIZE	Vertical Size Adjustment		00~7F	14	
H SIZE	Horizontal Size Adjustment		00~7F	45	
EW PARA	East West Parabola Adjustment		00~3F	13	
EW TRAP	East West Trapezium Adjustment		00~7F	3B	
OSD POSITION					
V POSI	OSD Vertical Position		00~FF	22	
CLK1	OSD Clock Adjust		00~4F	402	
H POSI1	OSD Horizontal Position		00~FF	00	
CLK2	OSD Clock Adjust		00~4F	42	
H POSI2	OSD Horizontal Position		00~FF	00	
CLK3	OSD Clock Adjust		00~4F	49	
H POSI3	OSD Horizontal Position		00~FF	0D	

Adjustment Mode OSD	Adjustment Item		Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
AFC			–	–	
MEMORY INIT			–	–	
I2C OPEN			–	–	
IR BLASTER			–	–	
E2PROM edit					
ADDRESS	ADRRESS		–	–	
DATA	DATA		00~FF	–	
P MODE ADJ					
Contrast	Contrast Reset Step Adjustment	Day Mode	00~60	60	
	00 step (0%) ~ 60 step (100%)	Night Mode	00~60	42	
Brightness	Brightness Reset Step Adjustment	Day Mode	00~60	30	
	00 step (0%) ~ 60 step (100%)	Night Mode	00~60	33	
Color	Color Reset Step Adjustment	Day Mode	00~60	30	
	00 step (0%) ~ 60 step (100%)	Night Mode	00~60	30	
Tint	Contrast Reset Step Adjustment	Day Mode	00~60	30	
	00 step ~ 60 step	Night Mode	00~60	30	
Sharpness	Tint Reset Step Adjustment	Day Mode	00~60	30	
	00 step (0%) ~ 60 step (100%)	Night Mode	00~60	24	
Color Temperature	Color Temperature Reset Adjustment High, Medium, Standard, Black/White	Day Mode	High Medium Standard Black/White	High	
		Night Mode	High Medium Standard Black/White	Standard	
Black Enhancement	Black Enhancement Reset Adjustment High, Middle, Low, Off	Day Mode	High, Middle Low, Off	Middle	
		Night Mode	High, Middle Low, Off	Low	
Edge Enhancement	Edge Enhancement Reset Adjustment High, Middle, Low, Off	Day Mode	High, Middle Low, Off	High	
		Night Mode	High, Middle Low, Off	Low	
CCD/V CHIP					
SAMPLING	V Chip Adjust		00~FF	00	
POLLING			00~FF	0F	
START			00~07	02	
TIMEOUT			00~1E	05	
STATUS			00~07	02	
CLK POS	Adjust CCD Clock Position HDTV only		00~1F	0A	
VIDEO ID	VIDEO ID Detection 0: 4:3 signal, 1: 4:3 letter box signal 2: 16:9 screen signal, FF: No VIDEO ID		00~02, FF	*	
IR BLASTER					
WAIT	IR Blaster Adjustment		00~FF	06	
REPEAT			00~FF	20	

Adjustment Mode OSD	Adjustment Item		Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
ISF Mode: TA1360 (88H)					
RGBOUT0	RGB Output Mode Switch 00: Normal, 01: R only, 02: G only, 03: B only		00～03	00	
SUB-BRT	Brightness Adjustment 00: .40 IRE~ FF: +40 IRE	Black Enhancement High	3C～FF	7F	
BRTM	Brightness Offset 1	Middle	00～7F	3F	
BRTL		Low		3F	
BRTO		Off		3F	
BRTJ	Brightness Offset 2	480p/720p 1080i/Digital		3F	
G-DRV-H	Green Drive Gain Adjustment	High	00～7F	3F	
G-DRV-M	00: -5 dB ~ 7F: +3dB	Medium		4A	
G-DRV-S	Data(M) = High + Medium – 3F	Standard		52	
G-DRV-B	Data(S) = High + Standard – 3F	Black/White		58	
R-DRV-H	Red Drive Gain Adjustment	High	00～7F	3F	
R-DRV-M	00: -5 dB ~ 7F: +3dB	Medium		4E	
R-DRV-S	Data(M) = High + Medium – 3F	Standard		56	
R-DRV-B	Data(S) = High + Standard – 3F	Black/White		64	
R-CUT-H	Red Cutoff Adjustment	High	00～FF	7F	
R-CUT-M	00: 1.9 V~ FF: 2.9 V	Medium		7F	
R-CUT-S	Data(M) = High + Medium – 7F	Standard		7F	
R-CUT-B	Data(S) = High + Standard – 7F	Black/White		7F	
G-CUT-H	Green Cutoff Adjustment	High	00～FF	7F	
G-CUT-M	00: 1.9 V~ FF: 2.9 V	Medium		7F	
G-CUT-S	Data(M) = High + Medium – 7F	Standard		7F	
G-CUT-B	Data(S) = High + Standard – 7F	Black/White		7F	
B-CUT-H	Blue Cutoff Adjustment	High	00～FF	7F	
B-CUT-M	00: 1.9 V~ FF: 2.9 V	Medium		7F	
B-CUT-S	Data(M) = High + Medium – 7F	Standard		7F	
B-CUT-B	Data(S) = High + Standard – 7F	Black/White		7F	
SUBCNT0	Sub Contrast 00: -3.4 dB ～ 1F: +2.6 dB		00～1F	12	
COLOR-3	Color	TV/NTSC	00～7F	46	
COLOR-D	(Center Adjustment)	SDTV		4B	
COLOR-E	00: -20 dB ～ 7F: +4.5 dB	HDTV		4C	
COLOR-M	Color Offset	Medium	00～3F	1F	
COLOR-S		Standard		1F	
COLOR-B		B/W		1F	
TINT-3	Tint(Center Adjustment)	TV/NTSC	00～7F	3F	
TINT-D	00: -32 degree	SDTV		3F	
TINT-E	7F: +32 degree	HDTV		3F	
TINT-M	Tint Offset	Medium	00～3F	1F	
TINT-S		Standard		1F	
TINT-B		B/W		1F	
SHARP-3	Sharpness	ANT A, B/NTSC	00～7F	20	
SHARP-G	(Center Adjustment)	480i/480p		20	
SHARP-I	-10 dB ～ +15 dB	720p/1080i		1F	
SHARP-C		SPLIT		20	

Adjustment Mode OSD	Adjustment Item			Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
ISF Mode: TA1360 (88H)						
RY-PH3	R-Y/B-Y Phase	ANT A, B/NTSC		00~0F	00	
RY-PHD	00: 90 degree	SDTV			00	
RY-PHE	0F: 109 degree	HDTV			00	
R/BGA3H	R-Y/B-Y Gain	TV/NTSC	High	00~0F	09	
R/BGA3M	00: 0.56		Medium		07	
R/BGA3S	0F: 0.86		Standard		05	
R/BGA3B			Black/White		02	
R/BGADH		SDTV	High		0A	
R/BGADM			Medium		08	
R/BGADS			Standard		06	
R/BGADB			Black/White		03	
R/BGAEH		HDTV	High		07	
R/BGAEM			Medium		05	
R/BGAES			Standard		03	
R/BGAEB			Black/White		02	
GY-PH3	G-Y/B-Y Phase	TV/NTSC		00~0F	02	
GY-PHD	00: 232.5 degree	SDTV			02	
GY-PHE	0F: 255 degree	HDTV			03	
G/BGA3H	G-Y/B-Y Gain	TV/NTSC	High	00~0F	01	
G/BGA3M	00: 0.3		Medium		02	
G/BGA3S	0F: 0.45		Standard		03	
G/BGA3B			Black/White		04	
G/BGADH		SDTV	High		02	
G/BGADM			Medium		03	
G/BGADS			Standard		04	
G/BGADB			Black/White		05	
G/BGAEH		HDTV	High		00	
G/BGAEM			Medium		01	
G/BGAES			Standard		02	
G/BGAEB			Black/White		03	
BSPH	BLACK STRETCH POINT	Black Enhancement	High	00~07	05	
BSPM			Middle		03	
BSPL			Low		01	
DCPNT	DC Restoration Point 00: 0% ~ 07: 47%			00~07	00	
DCRAT	DC Restoration Rate 00: 100% ~ 07: 135%			00~07	00	
DCLMT	DC Restoration Limit Point 00: 60%, 01: 73%, 02: 87%, 03: 100%			00~03	00	
DABLPN	Dynamic ABL Detection Point 00: MIN ~ 03: MAX			00~03	03	
DABLGA	Dynamic ABL Gain 00: MIN ~ 03: MAX			00~03	00	

Adjustment Mode OSD	Adjustment Item		Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
TA1360 (88H)					
SCP-SW0	Sand castle Pulse Switch 00: Internal, 01: External Input		00~01	01	
H-POSI	Horizontal Position Adjustment 00: -10%~ 7F: +10% Data(H) = H POSI + H POSI H – 3F DVI=SAM 1080i Bypass, Data(S) = H POSI + H POSI H – 3F +H-POSIS – 3F	Normal	00~7F	42	
H-POSIH		Bypass		3D	
H-POSIS		HDMI Bypass s		48	
APRTR-3	Aperture Control Peak f0 0: 15 MHz, 1: 8.8 MHz 2: 7.5 MHz, 3: 5 MHz	ANT A, B/NTSC	00~03	01	
APRTR-G		480i/480p		01	
APRTR-H		720p/1080i/Digital		00	
APRTR-C		SPLIT		01	
CLT-0	Color Limiter Level Switch 0: 1.65 Vp-p, 1: 2 Vp-p		00~01	01	
CSRTG-0	Color SRT Gain 0: min~3: max		00~03	00	
CSRTF-0	Color SRT Frequency 0: 4.3 MHz~1: 5.8 MHz		00~01	01	
VMPHS-P	VM Phase 00: -37.5 ns, 05: Normal 07: +15 ns	ANT A, B, NTSC/480i/480p	00~07	06	
VMPHS-J		720p/1080i/Digital		04	
CDE-0	Color Detail Enhancer 00: min ~ 03: max		00~03	00	
DCUBRT0	RGB Brightness 00: -20 IRE ~ 7F: +20 IRE		00~7F	3F	
DCUCNT0	RGB Contrast 00: -17 dB ~ 7F: 0 dB		00~7F	5A	
OSDACL0	OSD Auto Contrast Limiter Switch 0: OFF 1: ON		00~01	00	
OSDBRT0	OSD Brightness Adjustment 00: 5 IRE, 01: 0 IRE, 02:-5 IRE, 03:-10 IRE		00~03	02	
OSDCNT0	OSD Contrast Adjustment 00: -9.5 dB ~ 03: 0 dB		00~03	02	
DCRRSW0	DC Restoration Ratio Switch 0: 100% less, 1: 100% over		00~01	00	
COLORG0	Color γ Correction Point 00: OFF, 01: 0.23 Vp-p, 02: 0.37 Vp-p, 03: 0.52 Vp-p		00~03	00	
YCGA-0	Component Dynamic Y/C Correction Select 00: OFF, 01: min, 02: mid, 03: max		00~03	00	
APL/BS0	APL / Black Stretch Start Point 00: 0 IRE ~ 03: 23 IRE		00~03	00	
BLACK	Black Level Auto Correction Switch 00: OFF, 01: ON Black Detection Level Switch 00: 3 IRE, 1: 0 IRE Black Stretch Area Correction Switch 00: ON, 01: OFF		00~07	01	
SRTGA-0	SRT(Super Real Transient) Gain 00: MIN ~ 1F: MAX		00~1F	10	

Adjustment Mode OSD	Adjustment Item	Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
TA1360 (88H)				
WPLLVL0	White Character Correction Amplitude 00: min ~ 07: max	00~07	07	
ABLPN-0	ABL Detection Point 00: MIN ~ 07: MAX	00~07	07	
ABLGA-0	ABL Gain 00: MIN ~ 07: MAX	00~07	00	
DGGAIN0	Dynamic Y Gamma Gain vs Dark Area 00: OFF ~ 07: MAX(+6 dB)	00~03	00	
DGAREA0	Dynamic Y Gamma Gain vs Bright Area 00: OFF ~ 07: max	00~07	00	
STATG10	Static Y Gamma Black Gain 00: OFF, 01: MIN(0 DB) ~ 07: MAX(+6 DB)	00~07	00	
STATG20	Static Y Gamma Bright Gain 00: OFF, 01: MIN(0 DB) ~ 03: MAX(-6 DB)	00~03	03	
YOUTG-0	Y Gamma Switch 0: OFF, 1: ON	00~01	00	
YDTL-0	Y Detail Control 00: MIN(Trap) ~ 0F: MAX(+6 dB)	00~0F	07	
YDELAY0	Y Group Delay Control 00: MIN(Trap) ~ 0F: MAX(+6 dB)	00~0F	09	
WPPNT-0	White Peak Blue Point 00: 55 IRE ~ 07: 105 IRE	00~07	00	
WPGA-0	White Peak Blue Gain 00: min(+2 dB) ~ 07: max(+9.5 dB)	00~07	00	
HIBRT-0	High Bright Color Switch 00: OFF, 01: ON	00~01	00	
WPS-0	White Peak Suppressor Level 00: 110 IRE, 01: 130 IRE	00~01	01	
BLS-0	Blue Stretch Gamma Correction 00: OFF, 01: ON	00~01	00	
GSTR-0	Green Stretch 00: OFF ~ 03: MAX	00~03	00	
BSTRG-0	Blue Stretch Gain 00: OFF ~ 03: MAX(+4 dB)	00~03	00	
BSTRP-0	Blue Stretch Point 00: MIN(30 IRE)~ 03: MAX(45 IRE)	00~03	00	
BSCHR10	Black Stretch Characteristic Switch 1 (OFF~MAX)	00~01	00	
BSCHR20	Black Stretch Characteristic Switch 2 (OFF~MAX)	00~01	00	

Adjustment Mode OSD	Adjustment Item		Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
UPD64084 (B9H) Read Mode					
NOISE	Noise Level Detection 00: Noise Small ~ FF: Noise Large		00~FF	*	
VID-ID	Video ID Detection 0: 4:3 signal, 1: 16:9 signal, 2: 4:3 letter box signal		00~03	*	
UPD64084 (B8H)					
DYGA	Y Motion Detection Gain 0: Gain 0 ~ F: Gain MAX		00~0F	09	
DCGA	Chroma Motion Detection Gain 0: Gain 0 ~ F: Gain MAX		00~0F	06	
VAPGA	Vertical Aperture Control Gain 0: Correction OFF ~ 7: Correction MAX (x0.875)		00~07	00	
VAPIN	Vertical Aperture Control Invert 0: Correction OFF ~ 1F: Correction MAX (x0.875)		00~1F	0B	
YHCOR	Y Output High Frequency Coring 0: Coring OFF, 1: Coring Small, 2: Coring Center, 3: Coring Large		00~03	00	
TA1270-Main/Sub (24H/2CH)					
CONT1M	Sub Contrast Control 00: -3dB~ 1F:+3dB	Main ANT	00~1F	11	
CONT1S		Sub ANT		11	
CONT2		NTSC		11	
CLR1M	Color Control 00: -5.3dB, 10: 0dB, 1F: +3dB	Main ANT	00~1F	0D	
CLR1S		Sub ANT		0D	
CLR2		NTSC		0D	
TINT1M	Tint Control 00: -32deg, 7F: +32deg	Main ANT	00~7F	3E	
TINT1S		Sub ANT		3E	
TINT-2		NTSC		3E	
AN15865-Main/Sub (85H/8DH) Read Mode					
AFCM	Main AFC-LOCK 0: unlocked, 1: locked		00~01	*	
AFCS	Sub AFC-LOCK 0: unlocked, 1: locked		00~01	*	
SYSM	Main Out5 System Status 0: 480i_60, 1: 480p_60, 2: 1080i_60, 3: 720p_60 4: 576i_50, 5: 576p_50, 6: 1080i_50, 7: 720p-50		00~07	*	
SYSS	Sub Out5 System Status 0: 480i_60, 1: 480p_60, 2: 1080i_60, 3: 720p_60 4: 576i_50, 5: 576p_50, 6: 1080i_50, 7: 720p-50		00~07	*	
SYNCM	Main Sync Status D7: Sync status (0: Binary sync, 1: Tri-level sync) D6: MACROVISION detection (0: normal, 1: macro vision) D5: Auto distinc. Result CVST det (0: SY, 1: CY)		00~7F	*	
SYNCS	Sub Sync Status D4: Auto distinc. Result Sync fix (0: continue, 1: fix) D3: Australia interlace (0: expect, 1: Australia) D2: Australia format (0: normal, 1: letter) D1: Signal detect (0: No signal, 1: Signal input)		00~7F	*	

Adjustment Mode OSD	Adjustment Item		Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
AN15865-Main (84H) Write Mode					
SYNCAFC	OUT5 Sync AFC/Independent Select 0: AFC, 1: Independent		00h-01h	00	
SYNCSEP	OUT5 Sync Normal/Separate Select 0: Normal, 1: Separated		00h-01h	00	
OUT4LPF	OUT4 LPF ON/OFF 0: LPF OFF, 1: LPF ON		00h-01h	00	
TA1370 (D8H) Write Mode					
SEPLVL4	Separation Level 0h: 10 IRE, 1h: 15 IRE, 2h: 20 IRE, 13 0h: 25 IRE	Main 480p	00h-03h	01	
SEPLVL5		Main 720p		00	
SEPLVL6		Main 1080i		00	
HDPHS4	HD Phase Control 00h: -5%, 20h: 0%, 3Fh: +5%	Main 480p	00h-03h	23	
HDPHS5		Main 720p		27	
HDPHS6		Main 1080i		24	
NJW1160 (82H)					
BBE-LO1	BBE Low Frequency Effect Level1 0dB~15dB		00~0F	05	
BBE-LO2	BBE Low Frequency Effect Level2 0dB~15dB		00~0F	09	
BBE-HI1	BBE High Frequency Effect Level1 0dB~15dB		00~0F	03	
BBE-HI2	BBE High Frequency Effect Level2 0dB~15dB		00~0F	05	
AGC	AGC Level Setting 150m/300m/400m/540mVrms		00~03	01	

Adjustment Mode OSD	Adjustment Item		Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
TA1317 (8CH)					
VSIZE	Vertical Size Adjustment	Normal	00~7F	14	
VSIZEM		Magic Focus	00~FF	83	
HSIZE	Horizontal Size Adjustment	Normal	00~7F	45	
HSIZEM		Magic Focus	00~FF	8B	
EWPARA	East West Parabola Adjustment -100 to 65%		00~3F	13	
EWTRAP	East West Trapezium Adjustment -13.5% to 13.5%		00~7F	3B	
VLINE	Vertical Linearity Control -10.5% to 10.5%		00~1F	1B	
ABL1	Auto Brightness Control 0.5V to 5.0V		00~7F	7F	
ABL2	Auto Brightness Control 0.5V to 5.0V		00~7F	40	
ABL3	Auto Brightness Control 0.5V to 5.0V		00~7F	00	
ABL4	Auto Brightness Control 0.5V to 5.0V		00~7F	7F	
VDFPHS	Vertical Dynamic Focus Phase Control -2ms to 2ms		00~0F	01	
VDFAMP	Vertical Dynamic Focus Amplitude Control -10% to 10%		00~0F	00	
VICORR	Vertical Integral Correction Control 0% to 4%		00~0F	00	
VSCORR	Vertical S Correction Control 1.5 to 2.26Vp		00~3F	20	
EWTCRN	East West Top Corner Control -40 to 40%		00~1F	19	
EWBCRN	East West Bottom Corner Control -40 to 40%		00~1F	17	
EWSCRR	East West S Correction -32% to 35%		00~1F	10	
EWCRN	East West Corner Control -42 to 47%		00~1F	10	
VSYM	Vertical Symmetry Control 4.95 to 5.70V		00~FF	80	

Adjustment Mode OSD	Adjustment Item	Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
HDMI_1 (60H) READ Mode				
SYNC1	VSYNC/Clock detect/Sync detect 1	00~07	*	
HDMI_1 (68H) READ Mode				
NHRDL1	N hardware value 1 Low 7 bit	00~FF	*	
NHRDM1	N hardware value 1 Mid 7 bit	00~FF	*	
NHRDH1	N hardware value 1 High 7 bit	00~FF	*	
CHRDL1	CTS hardware value 1 Low 7 bit	00~FF	*	
CHRDM1	CTS hardware value 1 Mid 7 bit	00~FF	*	
CHRDH1	CTS hardware value 1 High 4 bit	00~FF	*	
ACR1	ACR PLL hardware value 1	00~FF	*	
ACRS1	ACR PLL hardware value 1	00~3F	*	
SFREQ1	Extracted Sampling Frequency 1 channel status bits 24-27(same value at 0x30)	00~0F	*	
CLKFRQ1	Clock Accuracy/Sampling Frequency 1	00~FF	*	
ALNG1	Audio length/Audio length max 1	00~FF	*	
MT/MD1	AV mute/HDMI mode 1	00~FF	*	
VTYP1	AVI info frame type code 1	00~FF	*	
VVER1	AVI info frame version code 1	00~FF	*	
VINFO11	AVI info frame data 1	00~FF	*	
VINFO21		00~FF	*	
VINFO31		00~FF	*	
VINFO41		00~FF	*	
VINFO51		00~FF	*	
ATYP1	AUDIO Info Frame Type Code 1	00~FF	*	
AVER1	AUDIO Info Frame Version Code 1	00~FF	*	
AINFO11	AUDIO Info Frame Data Bytes 1	00~FF	*	
AINFO21		00~FF	*	
AINFO31		00~FF	*	
AINFO41		00~FF	*	
AINFO51		00~FF	*	
HDMI_2 (60H) READ Mode				
SYNC2	VSYNC/Clock detect/Sync detect 2	00~07	*	

Adjustment Mode OSD	Adjustment Item	Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
HDMI_2 (68H) READ Mode				
NHRDL2	N hardware value 2 Low 7 bit	00~FF	*	
NHRDM2	N hardware value 2 Mid 7 bit	00~FF	*	
NHRDH2	N hardware value 2 High 4 bit	00~FF	*	
CHRDL2	CTS hardware value 2 Low 7 bit	00~FF	*	
CHRDM2	CTS hardware value 2 Mid 7 bit	00~FF	*	
CHRDH2	CTS hardware value 2 High 4 bit	00~FF	*	
ACR2	ACR PLL hardware value 2	00~FF	*	
ACRS2	ACR PLL hardware value 2	00~3F	*	
SFREQ2	Extracted Sampling Frequency 2 channel status bits 24-27(same value at 0x30)	00~0F	*	
CLKFRQ2	Clock Accuracy/Sampling Frequency 2	00~FF	*	
ALNG2	Audio length/Audio length max 2	00~FF	*	
MT/MD2	AV mute/HDMI mode 2	00~FF	*	
VTYP2	AVI info frame type code 2	00~FF	*	
VVER2	AVI info frame version code 2	00~FF	*	
VINFO12	AVI info frame data 2	00~FF	*	
VINFO22		00~FF	*	
VINFO32		00~FF	*	
VINFO42		00~FF	*	
VINFO52		00~FF	*	
ATYP2	AUDIO Info Frame Type Code 2	00~FF	*	
AVER2	AUDIO Info Frame Version Code 2	00~FF	*	
AINFO12	AUDIO Info Frame Data Bytes 2	00~FF	*	
AINFO22		00~FF	*	
AINFO32		00~FF	*	
AINFO42		00~FF	*	
AINFO52		00~FF	*	

Adjustment Mode OSD	Adjustment Item	Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
HDMI_1/2 (60H) WRITE Mode				
BPMA	Back Porch Mode, Field2 VCO Range Select: 00 = low range setting (default) 01 = mid-low range setting 10 = mid-high range setting 11 = high range setting	00~01	01	
VCORA	VCO range select (chip initialization) Charge Pump Current Select, when PLL_CGC[1]=0. 000 = 50μa 001 = 100μa (default) 010 = 150μa 011 = 250μa 100 = 350μa 101 = 500μa 110 = 750μa	00~03	00	
CRNTA	change pump current select	00~07	00	
HDMI_1/2 (68H) WRITE Mode				
TESTA	Matching Test to allow increment of stability counter. 1=Previous and most recent counts must match exactly. 0=Match determined by WINDIV value.	00~01	01	
PRMB	preamble criteria	00~1F	06	
HDCP	HDCP enable criteria	00~1F	0C	
DUMMY	Don't care		*	
OSD Position				
V POSI	OSD Vertical Position	00~FF	22	
H POSI1	OSD Horizontal Position 1	00~FF	00	
H POSI2	OSD Horizontal Position 2	00~FF	00	
H POSI3	OSD Horizontal Position 3	00~FF	0D	
OSDCL1	OSD Clock Adjust 1	00~4F	42	
OSDCL2	OSD Clock Adjust 2	00~4F	42	
OSDCL3	OSD Clock Adjust 3	00~FF	49	

Adjustment Mode OSD	Adjustment Item	Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
FC-4 Read Mode				
FC-VER	FC Unit Micro Version Number	00~FF	*	
FC-CHKH	FC Unit Micro Check Sum Number (High Bit)	00~FF	*	
FC-CHKL	FC Unit Micro Check Sum Number (Low Bit)	00~FF	*	
3-2T/C	TV/Cinema: 3-2 Pull Down Signal Detection 0: TV, 1: Cinema	00~01	*	
VFREQH	Main/Sub Vertical Frequency Detection (High 6Bit, Low 8Bit)	00~FF	*	
VFREQL	59.94Hz = 17D2, 60Hz = 17CC	00~FF	*	
HFREQH	Main/Sub Vertical Frequency Detection (High 5Bit, Low 8Bit)	00~FF	*	
HFREQL	NTSC/480i = 0E85, 480p = 0742 1080i = 06C2, 720p = 0514	00~FF	*	
APLDET	APL Detection	00~FF	*	
PEAKDET	PEAK Detection	00~FF	*	
YGAIN	Dynamic Contrast Y Gain 00: x1, 7F: x2	00~7F	*	
CGAIN	Dynamic Contrast Color Gain 00: x1, 3F: x2	00~3F	*	
FC-4 Write Mode				
B-BACK	Blue Back: FC Free Run Mode 0: Blue Back OFF, 1: Blue Back ON	00~01	*	
MAININ	Main Input Mode 0: NTSC, 1: 480i, 2: 480p, 3: 720p, 4: 1080i, 5: BM	00~0F	*	
SUBIN	Sub Input Mode 0: NTSC, 1: 480i, 2: 480p, 3: 720p, 4: 1080i	00~0F	*	
VDPOS-0	VD Position Offset	00~7F	3F	
LINE-I0	Line Interpolation 0: OFF, 1: ON	00~01	00	

Adjustment Mode OSD	Adjustment Item		Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
HHPF1D	Horizontal High Pass Filter 1 Characteristic Switch 0: Low Freq, 1: High Freq	ANT/NTSC/480i/480p	00~01	00	
HHPF1E		720p/1080i/Digital		00	
V-ENH-D	Vertical Enhance	ANT/NTSC/480i/480p	00~03	02	
V-ENH-E		720p/1080i/Digital		00	
H-ENH-D	Horizontal Enhance	ANT/NTSC/480i/480p	00~03	00	
H-ENH-E		720p/1080i/Digital		00	
YHFRQ-D	Y Horizontal HPF Peak Frequency Switch	ANT/NTSC/480i/480p	00~03	00	
YHFRQ-E		720p/1080i/Digital		00	
CHFRQ-D	Color Horizontal HPF Peak Frequency Switch	ANT/NTSC/480i/480p	00~03	02	
CHFRQ-E		720p/1080i/Digital		02	
YVNLP-D	Y Vertical Nonlinear Peaking	ANT/NTSC/480i/480p	00~3F	00	
YVNLP-E		720p/1080i/Digital		00	
YHNLP-D	Y Horizontal Nonlinear Peaking	ANT/NTSC/480i/480p	00~3F	0A	
YHNLP-E		720p/1080i/Digital		00	
YVHENHD	Y Vertical and Horizontal Enhance Gain	ANT/NTSC/480i/480p	00~1F	0B	
YVHENHE		720p/1080i/Digital		00	
CVHENHD	Color Vertical and Horizontal Enhance Gain	ANT/NTSC/480i/480p	00~1F	12	
CVHENHE		720p/1080i/Digital		12	
MFNR	Main Frame Cycle Noise Reduction 3 Dimension Filter 0: Y/C OFF, 1: Y OFF/C ON 2: C ON/Y OFF, 3: Y/C ON		00~03	03	
SFNR	Sub Frame Cycle Noise Reduction 3 Dimension Filter 0: Y/C OFF, 1: Y OFF/C ON 2: C ON/Y OFF, 3: Y/C ON		00~03	03	
MYNRIN	Main YNR Input Level Gain		00~07	04	
SYNRIN	Sub YNR Input Level Gain		00~07	04	
MYNRRD0	Main YNR Reducing Gain		00~07	01	
SYNRRD0	Sub YNR Reducing Gain		00~07	01	
MYNRPS0	Main YNR Passage Level Limit		00~07	00	
SYNRPS0	Sub YNR Passage Level Limit		00~07	00	
MYNR0-0	Main YNR 0 Point		00~0F	07	
SYNR0-0	Sub YNR 0 Point		00~0F	07	
MCNRIN0	Main CNR Input Level Gain		00~07	04	
SCNRIN0	Sub CNR Input Level Gain		00~07	04	
MCNRRD0	Main CNR Reducing Gain		00~07	00	
SCNRRD0	Sub CNR Reducing Gain		00~07	00	
MCNRPS0	Main CNR Passage Level Limit		00~07	02	
SCNRPS0	Sub CNR Passage Level Limit		00~07	02	
MCNR0-0	Main CNR 0 Point		00~0F	06	
SCNR0-0	Sub CNR 0 Point		00~0F	06	

Adjustment Mode OSD	Adjustment Item	Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
VECRG-0	Vertical Enhance Coring	00~03	00	
HECRG-0	Horizontal Enhance Coring	00~03	00	
Y-CRG-0	Y Coring Amplitude	00~07	00	
C-CRG-0	Color Coring Amplitude	00~07	00	
YVECLP0	Y Vertical Enhance Clip Offset	00~0F	00	
YVEGA-0	Y Vertical Enhance Gain	00~0F	00	
YHECLP0	Y Horizontal Enhance Clip Offset	00~0F	00	
YHEGA-0	Y Horizontal Enhance Gain	00~0F	00	
CHEGA-0	Color Horizontal Enhance Gain	00~0F	0F	
VECSW0	Y/Color Vertical Enhance Clip Switch 0: Y ENH/C CTI, 1: Y ENH/C ENH, 2: Y LTI/C CIT, 3: Y LIT/C ENH	00~03	03	
HECSW0	Y/Color Horizontal Enhance Clip Switch 0: Y ENH/C CTI, 1: Y ENH/C ENH, 2: Y LTI/C CIT, 3: Y LIT/C ENH	00~03	03	
SLIP-0	Y/Color Slanting Line Interpolation 0: Y/C OFF, 1: Y OFF/C ON, 2: Y ON/C OFF, 3: Y/C ON	00~03	03	
YVEDGA0	Y Vertical Edge Detection Gain	00~03	03	
YVEDCR0	Y Vertical Edge coring	00~0F	04	
YMDEG10	Y Motion Detection Edge Gain 1	00~07	05	
YMDEC10	Y Motion Detection Edge Coring 1	00~1F	05	
YMDEG00	Y Motion Detection Edge Gain 0	00~07	05	
YMDEC00	Y Motion Detection Edge Coring 0	00~1F	05	
YHEDGA0	Y Horizontal Edge Detection Gain	00~03	03	
YHEDCR0	Y Horizontal Edge coring	00~0F	04	
YMDEG30	Y Motion Detection Edge Gain 3	00~07	02	
YMDEC30	Y Motion Detection Edge Coring 3	00~1F	08	
YMDEG20	Y Motion Detection Edge Gain 2	00~07	02	
YMDEC20	Y Motion Detection Edge Coring 2	00~1F	08	
CMDEG10	C Motion Detection Edge Gain 1	00~07	03	
CMDEC10	C Motion Detection Edge Coring 1	00~1F	08	
CMDEG00	C Motion Detection Edge Gain 0	00~07	04	
CMDEC00	C Motion Detection Edge Coring 0	00~1F	06	
CMDEG30	C Motion Detection Edge Gain 3	00~07	01	
CMDEC30	C Motion Detection Edge Coring 3	00~1F	0C	
CMDEG20	C Motion Detection Edge Gain 2	00~07	02	
CMDEC20	C Motion Detection Edge Coring 2	00~1F	0A	
HEGCRG0	H Edge Coring	00~1F	04	
DIFCRG0	Difference Coring	00~7F	07	
VE2CRG0	V Edge 2 Coring	00~1F	14	
VE1CRG0	V Edge 1 Coring	00~1F	14	

Adjustment Mode OSD	Adjustment Item	Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
GM0E	Dynamic Gamma+ End APL Gamma+EndAPL(00h~FEh)=GM0E(00h~7Fh)x2	00~7F	00	
GM0S	Dynamic Gamma+ Start APL Gamma+StartAPL(00h~FEh)=GM0S(00h~7Fh)x2	00~7F	3C	
GM1S	Dynamic Gamma- Start APL Gamma-End APL(00h~FEh)=GM1E(00h~7Fh)x2	00~7F	50	
GM1E	Dynamic Gamma- End APL Gamma-Start APL(00h~FEh)=GM1S(00h~7Fh)x2	00~7F	3F	
GMSPD	Dynamic Gamma Gain Change Speed 1, 1/2, 1/4, 1/8	00~03	00	
GMSW	Dynamic Gamma ON/OFF SW 0: OFF, 1: ON	00~01	00	
GM01	Dynamic Gamma+1 offset Y: Gamma1=GM01×Gain+31	00~1F	04	
GM02	Dynamic Gamma+2 offset Y: Gamma2=GM02×Gain+63 PB/PR: Gamma3=-GM02÷2×Gain+95 Gamma5=GM02÷2×Gain+159	00~1F	07	
GM03	Dynamic Gamma+3 offset Y: Gamma3=GM03×Gain+95	00~3F	09	
GM04	Dynamic Gamma+4 offset Y: Gamma4=GM04×Gain+127 PB/PR: Gamma2=-GM04÷2×Gain+63 Gamma6=GM04÷2×Gain+191	00~3F	08	
GM05	Dynamic Gamma+5 offset Y: Gamma5=GM05×Gain+159	00~3F	07	
GM06	Dynamic Gamma+6 offset Y: Gamma6=GM06×Gain+191 PB/PR: Gamma1=-GM06÷2×Gain+31 Gamma7=GM06÷2×Gain+223	00~1F	06	
GM07	Dynamic Gamma+7 offset Y: Gamma7=GM07×Gain+223	00~1F	03	
GM11	Dynamic Gamma−1 offset: GM01 Y: Gamma1=GM11×Gain+31	00~1F	03	
GM12	Dynamic Gamma−2 offset: GM01 Y: Gamma2=GM12×Gain+63 PB/PR: Gamma3=-GM12÷2×Gain+95 Gamma5=GM12÷2×Gain+159	00~1F	06	
GM13	Dynamic Gamma−3 offset: GM01 Y: Gamma3=GM13×Gain+95	00~3F	07	
GM14	Dynamic Gamma−4 offset: GM01 Y: Gamma4=GM14×Gain+127 PB/PR: Gamma2=-GM14÷2×Gain+63 Gamma6=GM14÷2×Gain+191	00~3F	08	
GM15	Dynamic Gamma−5 offset: GM01 Y: Gamma5=GM15×Gain+159	00~3F	09	

Adjustment Mode OSD	Adjustment Item	Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
GM16	Dynamic Gamma−6 offset: GM01 Y: Gamma6=GM16×Gain+191 PB/PR: Gamma1=-GM16÷2×Gain+31 Gamma7=GM16÷2×Gain+223	00∼1F	07	
GM17	Dynamic Gamma−7 offset: GM01 Y: Gamma7=GM17×Gain+223	00∼1F	04	
MHSLP	Hue Slope 1 (Magenta) -90°(00h)∼0°(40h)∼90°(FFh) Data=MHSLP+Menu(Tint Magenta)−30(1Eh)	00∼7F	40	
MHWD	Hue Width 1 (Magenta) Data= Width /360°×256=90°/360°×256=64 (3Fh)	00∼3F	3C	
MHCNT	Hue Center 1 (Magenta) Data= Hue /360°×256=45°/360°×256=32 (20h)	00∼FF	22	
MHCLP	Hue Clip 1 (Magenta)	00∼FF	0C	
RHSLP	Hue Slope 2 (Red) -90°(00h)∼0°(40h)∼90°(FFh) Data=R-SLOPE+R-Menu−30(1Eh)	00∼7F	40	
RHWD	Hue Width 2 (Red) Data= Width /360°×256=90°/360°×256=64 (3Fh)	00∼3F	3F	
RHCNT	Hue Center 2 (Red) Data= Hue /360°×256 =113.2°/360°×256=80 (50h)	00∼FF	49	
RHCLP	Hue Clip 2 (Red)	00∼FF	20	
YHSLP	Hue Slope 3 (Yellow) -90°(00h)∼0°(40h)∼90°(FFh) Data=Y-SLOPE+Y-Menu−30(1Eh)	00∼7F	40	
YHWD	Hue Width 3 (Yellow) Data= Width /360°×256=90°/360°×256=64 (3Fh)	00∼3F	26	
YHCNT	Hue Center 3 (Yellow) Data= Hue /360°×256=173.0°/360°×256=123 (7Bh)	00∼FF	7A	
YHCLP	Hue Clip 3 (Yellow)	00∼FF	0F	
GHSLP	Hue Slope 3 (Green) -90°(00h)∼0°(40h)∼90°(FFh) Data=G-SLOPE+G-Menu−30(1Eh)	00∼7F	40	
GHWD	Hue Width 4 (Green) Data= Width /360°×256=90°/360°×256=64 (3Fh)	00∼3F	3F	
GHCNT	Hue Center 4(Green) Data= Hue /360°×256=225.0°/360°×256=160 (A0h)	00∼FF	A2	
GHCLP	Hue Clip 4 (Green)	00∼FF	20	

Adjustment Mode OSD	Adjustment Item		Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
CHSLP	Hue Slope 5 (Cyan) -90°(00h)~0°(40h)~90°(FFh) Data=C-SLOPE+C-Menu−30(1Eh)		00~7F	40	
CHWD	Hue Width 5 (Cyan) Data= Width /360°×256=90°/360°×256=64 (3Fh)		00~3F	3F	
CHCNT	Hue Center 5 (Cyan) Data= Hue /360°×256=293.2°/360°×256=208 (D0h)		00~FF	C9	
CHCLP	Hue Clip 5 (Cyan)		00~FF	10	
BHSLP	Hue Slope 6 (Blue) -90°(00h)~0°(40h)~90°(FFh) Data=B-SLOPE+B-Menu−30(1Eh)		00~7F	40	
BHWD	Hue Width 6 (Blue) Data= Width /360°×256=90°/360°×256=64 (3Fh)		00~3F	3F	
BHCNT	Hue Center 6 (Blue) Data= Hue /360°×256 =353°/360°×256 = 251 (FBh)		00~FF	FA	
BHCLP	Hue Clip 6 (Blue)		00~FF	19	
HUECT1	Hue Center 1 (HUE°/ 360°/ 4 x 1024)		00~FF	A1	
HUECT0	Hue Center 0 (HUE°/360°/ 4 x 1024)		00~FF	CC	
MVWPH3	Main Vertical Write Input Horizontal Phase Adjustment	ANT Analog/NTSC/480i	00~07	05	
MVWPH4		480p		05	
MVWPH5		720p		05	
MVWPH6		1080i/ANT Digital		04	
SVWPH3	Sub Vertical Write Input Horizontal Phase Adjustment	ANT Analog/NTSC/480i	00~07	05	
SVWPH4		480p		05	
SVWPH5		720p		05	
SVWPH6		1080i/ANT Digital		04	
MHSHP1	Main Horizontal Sync Horizontal Phase Offset	ANT Analog/NTSC	00~FF	76	
MHSHP3		480i_YPBPR		68	
MHSHP4		480p_YPBPR		7F	
MHSHP5		720p_YPBPR		7F	
MHSHP6		1080i_YPBPR/ANT Digital		7F	
MHSHP7A		VGA_HDMI		84	
MHSHP5A		720p_HDMI		65	
MHSHP6A		1080i_HDMI		65	
SHSHP1	Sub Horizontal Sync Horizontal Phase Offset	ANT/NTSC	00~FF	84	
SHSHP3		480i_YPBPR		7F	
SHSHP4		480p_YPBPR		7F	
SHSHP5		720p_YPBPR		78	
SHSHP6		1080i_YPBPR/ANT Digital		79	
SHSHP7A		VGA_HDMI		6F	
SHSHP5A		720p_HDMI		69	
SHSHP6A		1080i_HDMI		63	

Adjustment Mode OSD	Adjustment Item		Adjustment Range(HEX)	Initial Data(HEX)	Adjustment Value(HEX)
READF3	Read Frequency Divider Ratio Offset Virtual HD: 540p, V-Freq: 60Hz	ANT Analog NTSC/480i	00~07	02	
READF4		480p		02	
READF5		720p		02	
READF6		1080i/ANT Digital		02	
READF7		RCA540p		02	
FRMBRT0	Y Frame Bright		00~7F	60	
FRMTOP0	Frame Top Position Offset		00~0F	00	
VBLKT-0	Vertical Blanking Top Position Offset		00~0F	07	
VBLKB-0	Vertical Blanking Bottom Position Offset		00~0F	07	
HBLKR-0	Horizontal Blanking Right Position Offset		00~FF	7F	
HBLKL-0	Horizontal Blanking Left Position Offset		00~FF	7F	
VPOSI-0	Vertical Position		00~7F	3F	
HDPOS-0	HD Position Offset		00~7F	3F	
DUMMY	Don't care			*	

2-21-Hitachi RS232C Communication Specification

This document defines the detailed RS232C control protocol for the following Hitachi CRT Projection Televisions:

The Information enclosed is subject to change without notice. Please refer to revision number shown above when inquiring about product support.

1. Hardware Interface

1.1- The cable interface to the monitor is a 9 pin D-Sub type.
1.2- The gender of the 9 pin D-sub on the monitor is female. Therefore, the cable interface to the monitor should be male.
1.3- The cable is configured in a null modem wiring scheme
1.4- A pin reference illustrations is provided below:

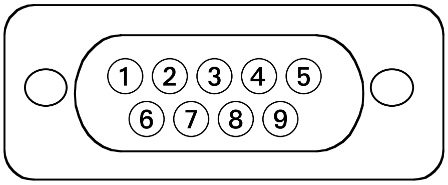


Figure. 1 (a) Male 9 pin D-sub
(Outside View)

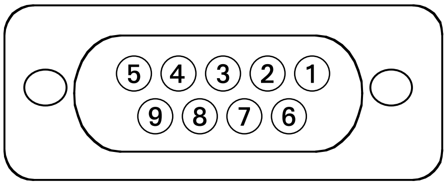


Figure. 1 (b) Female 9 pin D-Sub
(Outside View)

Pin #	Signal	Remark
1	NC	
2	RXD0	PTV ← Control PC
3	TXD0	PTV → Control PC
4	NC	
5	GND	PTV ←→ PC GND
6	NC	
7	NC	
8	NC	
9	NC	
Frame	GND	

1.5- Electric: Electrical specification is based on the current RS232C standard.

2. Communication Format

2.1- Port Configuration

(1) Communications System:	Asynchronous
(2) Bit Rate:	9600 bps
(3) Data Length:	7 bit
(4) Parity:	None
(5) Start Bit:	None
(6) Stop Bit:	1 bit

2.2- Data Format

(1) **Terminal Mode control format** (Turning on and Off Terminal Mode)

- Terminal On is achieved by sending a 1 byte command of 05 (Hex).
- Terminal Off is achieved by sending a 1 byte command of 04 (Hex)

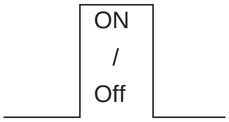


Figure. 2

(2) **Terminal Communication Format** (Sending Commands to TV)

- Commands are sent to the TV in 14 byte strings
- The strings consist of the following:

Start: 1 byte (02) Hex (STX)
Command: 12 byte
Stop: 1 Byte (03) Hex (ETX)

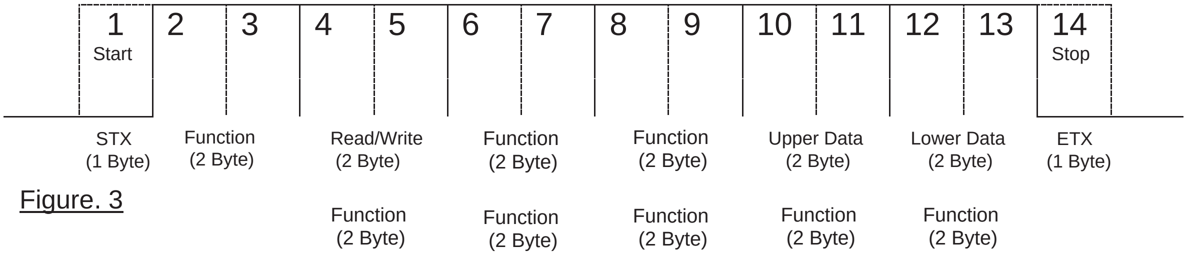

1
Start
2
3
4
5
6
7
8
9
10
11
12
13
14
Stop
STX
(1 Byte)
Function
(2 Byte)
Read/Write
(2 Byte)
Function
(2 Byte)
Function
(2 Byte)
Upper Data
(2 Byte)
Lower Data
(2 Byte)
ETX
(1 Byte)
Function
(2 Byte)
Function
(2 Byte)
Function
(2 Byte)
Function
(2 Byte)
Function
(2 Byte)

Figure. 3

(3) **Television Answer Format** (Showing current Status)

- The television responds with a 6 byte answer strings as follows:

Start: 1 byte (02) Hex (STX)
Response: 4 byte (Upper Data/Lower Data)
Stop: 1 Byte (03) Hex (ETX)

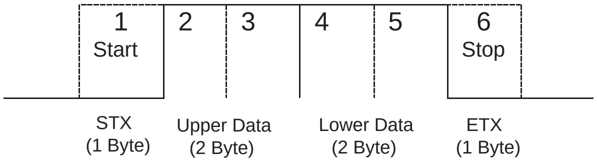

1
Start
2
3
4
5
6
Stop
STX
(1 Byte)
Upper Data
(2 Byte)
Lower Data
(2 Byte)
ETX
(1 Byte)

Figure. 4

(4) **Television Answer Format** (Status of Command Execution)

- Acknowledgement: (06) Hex (ACK)
- No Acknowledgement: (15) Hex (NAK)

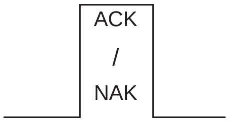
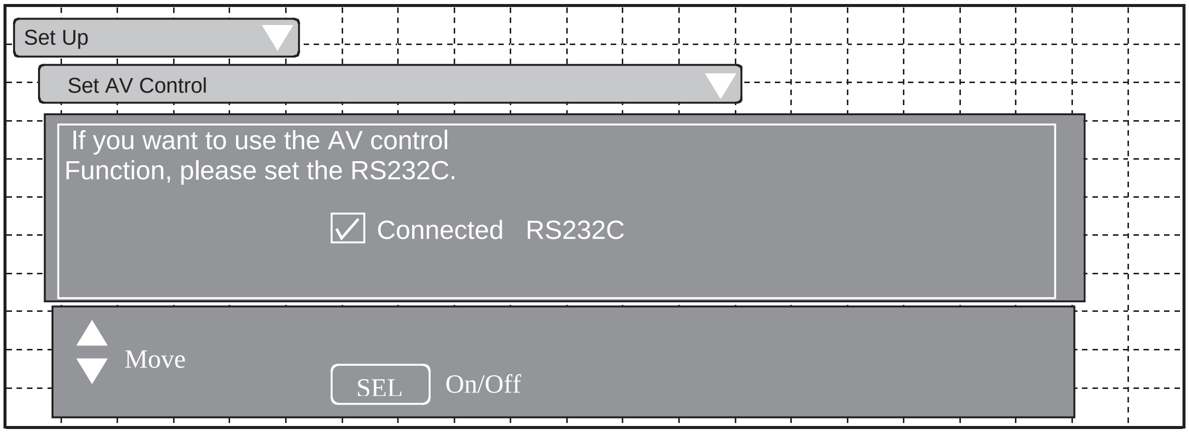


Figure. 5

3. Communication Protocol

3.1- Terminal Mode (Communication between television and external PC)

- When the RS232C mode is set from Off to On by the television OSD menu and the TXD2 and RXD2 serial communication lines are switched to AV control, the television can communicate with an external PC.



If you want to use the AV control Function, please set the RS232C.

☑ Connected RS232C

Table 3.2.1 Terminal Mode Control

Terminal Mode Switching		Projection Television	
		Command sent to PTV	Response from PTV
ON	Action	Request On	Accept / Reject
	Character	ENQ	ACK/NAK
	Code (Hex)	05	06/15
OFF	Action	Request OFF	Accept / Reject
	Character	EOT	ACK/NAK
	Code (Hex)	04	06/15

(1) External PC can turn terminal mode On and Off.
(2) Communication is prohibited when terminal mode is Off.
(3) When terminal mode is on, Front Keys and Remote do not operate. The only button that will operate is main power.
(4) When TV set is turned Off and On, terminal mode remains in its current state
(5) Factory Setting: Terminal Mode is Off and AV Control Mode is Off.
(6) The television will always respond when an attempt to turn terminal mode on or off is made with either an ACK or a NAK.
(7) In the following cases, even if the check box of menu is checked, Terminal mode cannot be turned on.
    - Adjust mode
    - While Event Timer and Timer Recording
    - While Auto CH scan operates
    - While Magic Focus operates
    - While upgrade operates
(8) Write function in terminal mode will write data to the EEPROM in the same manner as when unit is operated in Normal Mode through the OSD.
(9) For OSD functionality in terminal mode, see table 5.

3.2- Command Summary (Sending and Receiving Data)

3.2.1- Data received by Television

- TV will accept data from the PC when it is properly formatted as shown in table 3.2.1.1 only when the Terminal Mode is ON.
- The command length is 12 bytes with a start and stop byte. Therefore total command strings are 14 bytes
- The command consists of 6 Hex codes from 1st to 6th as shown below. (Total 12 bytes)
- All command strings should be described in character code and then converted to Hex Code.
- Table 3.2.1.2 shows the 3 types of command formats
- All commands are classified into these 3 types of command by the 1st and 2nd command byte.

Table 3.2.1.1 Communication format received by Television

	Start													Stop
Received byte #	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Contents Of Commands	Start	1st Function		2nd R/W		3rd Upper byte *(Function)*		4th Lower byte *(Function)*		5th Upper byte *(Data)*		6th Lower byte *(Data)*		Stop
Character -Hex	STX	0~F	0~F	0~F	0~F	0~F	0~F	0~F	0~F	0~F	0~F	0~F	0~F	ETX
Code- Hex	02	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	03

*1 Character Code: "0"-"9" → 30-39, "A" - "F" → 41-46

Note- See code conversion examples in section 4 for conversion details.

Table 3.2.1.2 Format of Commands Received by Television (12 bytes)

Form No.	Action	Command (12 byte)					
		1st	2nd	3rd	4th	5th	6th
(a)	Reset Write/Read	Command (**)	Dummy (00)	Dummy (00)	Dummy (00)	Dummy (00)	Dummy (00)
(b)	Read Data	Command (**)	Operation (**)	Command (**)	Command (**)	Dummy (00)	Dummy (00)
(c)	Write Data	Command (**)	Operation (**)	Command (**)	Command (**)	Data (**)	Data (**)

3.2.2 Format of commands sent from television to PC

- Upon completion of a command sent to the television as shown in table 3.2.1.2, The television will respond with an answer as shown in table 3.2.2.
- In the event that a command is rejected by the television, an Hex 15 will be sent to the PC.

Table 3.2.2 Answer format from television to PC

	Communication Normal/Error	When requesting read data only from the TV To the PC, the following format applies					
Sent byte No.	1	1	2	3	4	5	6
Contents of the command	Accepted or Rejected	Start	Data Upper byte		Data Lower byte		Stop
Character (Hex)	ACK/NAK	STX	0~F	0~F	0~F	0~F	ETX
Code (Hex)	06/15	02	*1		*1		03

*1 Character Code: Example "0"-"9" → 30-39 , "A" - "F" → 41- 46

3.3 Command Table

3.3.1- 1st sub command (for function) table

Table 3.3.1 1st Sub Command and Adjustment Table

No.	Setting Function	Command 1st Hex	Command R/W Control	Command 3rd/4th Hex	OSD	E2PROM	Command Format (*1)
1	POWER	6E	R/W	0000	Info	Write	(c)
2	INPUT	6F	R/W	0000	Info	Write	(c)
3	Volume	27	R/W	0000	Volume Bar		(c)
4	Balance	28	R/W	0000	No OSD		(c)
5	Treble	2B	R/W	0000	No OSD		(c)
6	Bass	2A	R/W	0000	No OSD		(c)
7	Audio Mute	29	R/W	0000	No OSD		(c)
8	Picture Mode	A4	R/W	0003	Day/Night		(c)
9	Contrast	59	R/W	0000	No OSD		(c)
10	Brightness	1F	R/W	0000	No OSD		(c)
11	Color	10	R/W	0000	No OSD		(c)
12	Tint	13	R/W	0000	No OSD		(c)
13	Sharpness	14	R/W	0000	No OSD		(c)
14	Color Temperature	60	R/W	0000	No OSD		(c)
15	Aspect	40	R/W	0000	Aspect (Info OSD)		(c)
16	INFO	B2	W	0000	Info		(c)
17	Direct CH 0~9	D0	W	0000	CH No.	Write	(c)
18	Direct CH -	D0	W	0001	CH No.	Write	(c)
19	Direct CH Select	D0	W	0002	CH No.	Write	(c)
20	Virtual HD	D3	R/W	0000	1080i/540p (Info OSD)		(c)
21	Auto Movie Mode	D4	R/W	0000	No OSD		(c)

3.3.2 2nd sub command (Read / Write) table

R	: Read Only. 01 Hex can be accepted. Data (absolute value) will be read from the TV.
W	: Write Only. 00(Hex) can be accepted. Data (absolute value) will be written to TV
R/W	: Read and Write. Both 00 and 01 (Hex) can be accepted When 01 (Hex) is sent to TV, the data (Absolute Value) will be read from TV When 00 (Hex) is sent to T V, the data (absolute value will be written to TV

3.3.3 5th and 6th Data Command Table

The table below shows the specification for the 5th and 6th data bytes.

Table 3.3.3 Specification for 5th and 6th data bytes in normal command

No.	Transfer Data (Hex) 5th	Transfer Data (Hex) 6th	Note
1	Dummy Data	Dummy Data	
2	Dummy Data	Transfer Data (1 byte)	
3	Transfer Data (upper 1 byte)	Transfer Data (lower 1 byte)	

Note- Any data that is transferred as Dummy data will be ignored by both the PC and the TV

3.3.4 Setting Items (Data Range of Commands)

Table 3.3.4 (Setting Item List)

No.	Setting Item	5th / 6th Data Range	Initial Setting	Comments
1	Power	0: Off 1: On	0	
2	Input	0: Input 1 1: Input 2 2: Input 3 3: Input 4 4: Input 5 6: Ant. A 7: Ant. B 8: PC 9: Photo Input	-	
3	Volume	0~60 Step	20	
4	Balance	0~60 Step	30	
5	Treble	0~30 Step	15	
6	Bass	0~30 Step	15	
7	Audio Mute	0: Off 1: On	0	
8	Picture Mode	0: Day 1: Night	0	
9	Contrast	0~60 Step	60	
10	Brightness	0~60 Step	30	
11	Color	0~60 Step	30	
12	Tint	0~60 Step	30	
13	Sharpness	0~60 Step	30	
14	Color Temperature	0: High 1: Medium 2: Standard 3: Black & White	-	
15	Aspect	0: 16:9 Std. 1: 16:9 Zoom 2: 4:3 Std. 3: 4:3 Expand 4: 4:3 Zoom 5: 4:3 Zoom 2	-	
16	Info	0: Off 1: On	0	
17	Direct CH 0~9	Key Code 0~9-0~9	-	
18	Direct Channel (-)	0	-	
19	Direct Channel Select	0	-	
20	Virtual HD	0: 1080I 1: 540p	0	
21	Auto Movie Mode	0: Off 1: On (Auto)	0	

3.3.5 Combination Control Specification

(1) Active Terminal On/Off States

ï If you send a Terminal On command when the OSD is active, the OSD will disappear

- The remote control keys will also be invalid except for the Power button on the front of the unit.
- Closed Caption Display (CCD) function will be usable when in Terminal Mode

Table 3.3.5 (Variables of Activating Terminal On / Terminal Off)

	Terminal On Command	**Terminal Off Command**
Power On	Executable	Executable
Stand-By	Executable	Executable
Adjust Mode	Prohibited	Prohibited
When Auto-CH is operating	Prohibited	Prohibited
While Magic Focus is operating (On Magic Menu Mode)	Prohibited	Prohibited
While upgrade is operating	Prohibited	Prohibited
When Lock is Set When Lock is turned on (BLK/Mute)	Executable	Executable
When Sleep Timer is Active	Executable	Executable
When CableCARD is inserted When CableCARD is in Stand-By	Executable	Executable
When the Event Timer / Timer Record are set	Executable	Executable
When the Event Timer / Timer Record are operating	Prohibited	Prohibited
When Auto Link is in Stand-By	Executable	Executable
When Day/Night Timer is set	Executable	Executable
When Quick Start Up Stand-By is active	Executable	Executable

- If the Terminal Mode is turned on while the Sleep Timer is active and unit is powered off by the controller, the time values in the Sleep Timer will be cleared.
- The Event Timer/ Timer Rec. will not operate when the unit is Terminal Mode On.
- If the Terminal Mode is activated when the Auto Link Setting is in Stand-By, The Auto Link operation will be cancelled.
- The Urgent Broadcast Signal will take precedence when Terminal Mode is on with the CableCARD installed.
- The Magic Timer function is disabled when Terminal Mode is On.

(2) Other Terminal Control Considerations

- Terminal Mode will remain On when you turn the power supply Off or On.
- If the TV is unplugged at the wall outlet, the Terminal Mode will turn Off.
- If the TV is turned off in normal mode and the Terminal On command is sent, the unit can be turned on via RS232C.
- The commands executed in Terminal mode should be executed and displayed after exiting Terminal Mode.

(3) Command Execution

1- The time delay between 1 byte characters in a command string is 99mS. Any delay longer than 100mS will be cancelled and the unit will respond with a ìNACKî (16H).
2- When transmitting command strings, an ACK or NAK should be sent by the TV. However, this will not be the case when commands are re-executed or the command does not execute.
3- The framing delay between continuos commands is 32mS.
4- When communicating with the unit in Terminal Mode, the unit must respond with either an ACK or an NAK before sending it another command. Failure to do so will result in commands that are not executed.
5- Please note that when the Power on command is sent to the unit, it will be necessary to wait 12 seconds before sending any other command.

4. Command String Development Information

4.1- To assist with developing command strings, the table below shows a Hex character conversion chart

Table 4.1.1 Hex Character Conversion Chart

Hex Character	Hex Code
0	30
1	31
2	32
3	33
4	34
5	35
6	36
7	37
8	38
9	39

Hex Character	Hex Code
A	41
B	42
C	43
D	44
E	45
F	46

4.2 - An example of the proper coding technique is demonstrated below for the ìPower Onî Command.

Hex Character Set: 6E: Power Function
00: Write Function (Note- A ì01î would indicate a read function)
00: 3rd (Upper byte-Function)
00: 4th (Lower byte-Function)
00: 5th (Upper byte-Data)
01: 6th (Lower byte- Data
Hex Coded Data: 364530303030303030303031

Note- an STX (02-Hex) would be added at the start of the string and ETX (03-Hex) would be added at the end of the string to create a complete command.

4.3- Figure 6 shows the 14 byte string formatted in Hex Characters for the ìPower On Functionî.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Start													Stop
02	6	E	0	0	0	0	0	0	0	0	0	1	

STX (1 Byte) · Function (2 Byte) · Read/Write (2 Byte) · Function (2 Byte) · Function (2 Byte) · Upper Data (2 Byte) · Lower Data (2 Byte) · ETX (1 Byte)

Function (2 Byte) · Function (2 Byte) · Function (2 Byte) · Function (2 Byte) · Function (2 Byte)

Figure 6

4.4- Figure 7 shows the ìPower Onî function converted to Hex Code set

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Start													Stop
02	36	45	30	30	30	30	30	30	30	30	30	31	

STX (1 Byte) · Function (2 Byte) · Read/Write (2 Byte) · Function (2 Byte) · Function (2 Byte) · Upper Data (2 Byte) · Lower Data (2 Byte) · ETX (1 Byte)

Function (2 Byte) · Function (2 Byte) · Function (2 Byte) · Function (2 Byte) · Function (2 Byte)

Figure 7

4.5- The following table provides the conversion strings for the "Write" commands

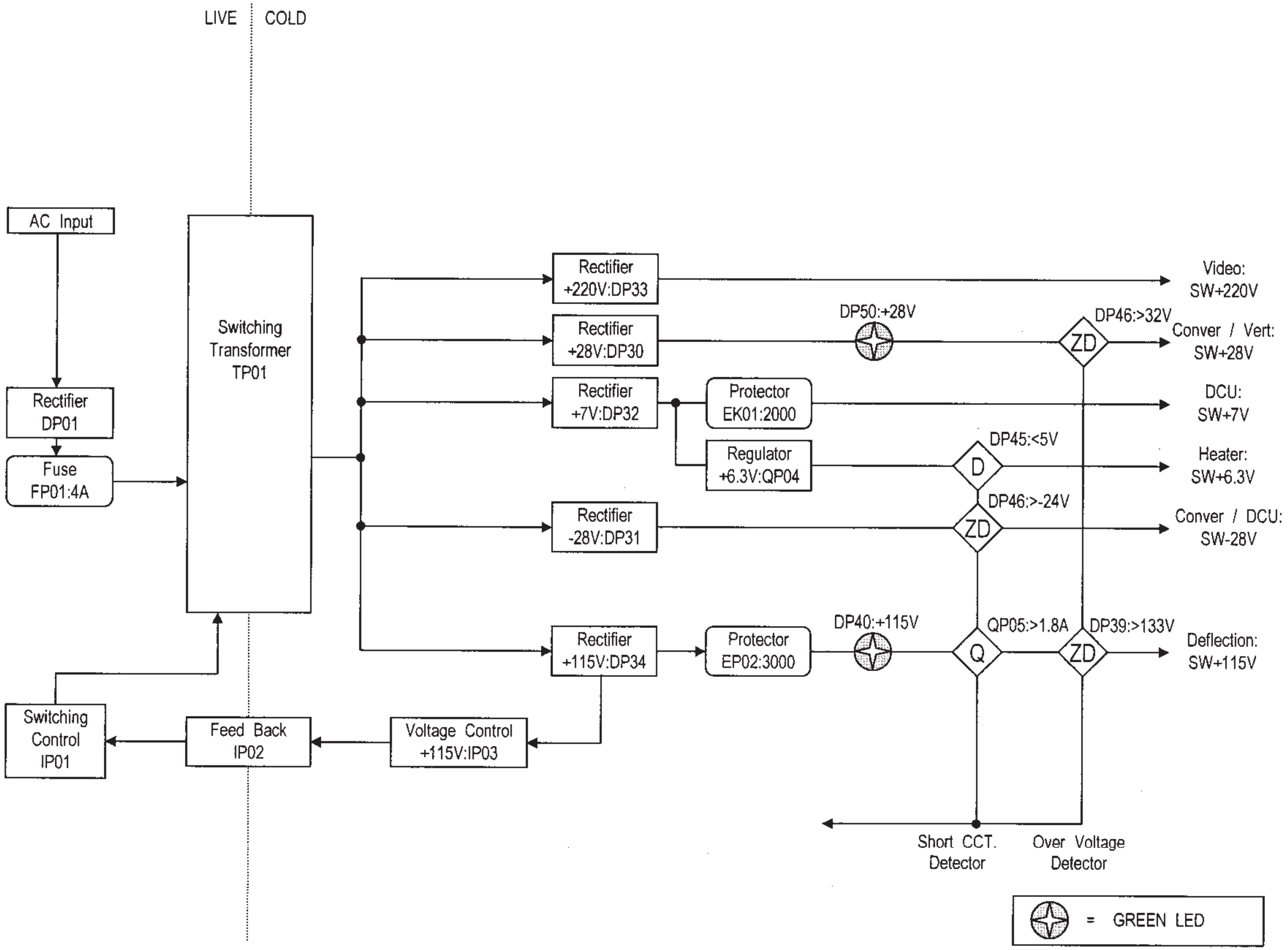
Table 4.5.1 Write Data Command Summary

No.	Item	Command	Initial Condition	Hex Character	Hex Code Set	Result
1	Power	On	0	6E0000000001	364530303030303030303031	Turns Power On
2	Power	Off	0	6E0000000000	364530303030303030303030	Turns Power Off
3	Input	Input 1	-	6F0000000000	364630303030303030303030	Input 1
4	Input	Input 2	-	6F0000000001	364630303030303030303031	Input 2
5	Input	Input 3	-	6F0000000002	364630303030303030303032	Input 3
6	Input	Input 4	-	6F0000000003	364630303030303030303033	Input 4
7	Input	Input 5	-	6F0000000004	364630303030303030303034	Input 5
8	Input	Antenna A		6F0000000006	364630303030303030303036	Antenna A
9	Input	Antenna B	-	6F0000000007	364630303030303030303037	Antenna B
10	Input	Photo Input	-	6F0000000009	364630303030303030303039	Photo Input
11	Volume	Set to 0	20	270000000000	323730303030303030303030	Set to 0
12	Balance	Set to 31	30	280000000031	323830303030303030303331	Set to 31
13	Treble	Set to 16	15	2B0000000016	324230303030303030303136	Set to 16
14	Bass	Set to16	15	2A0000000016	324130303030303030303136	Set to 16
15	Audio Mute	Set to off	0	290000000000	323930303030303030303030	Set to Off
16	Audio Mute	Set to On	0	290000000001	323930303030303030303031	Set to On
17	Picture Mode	Set to Day	0	A40000000000	413430303030303030303030	Set to Day
18	Picture Mode	Set to Night	0	A40000000001	413430303030303030303031	Set to Night
19	Contrast	Set to 59	60	590000000059	353930303030303030303539	Set to 59
20	Brightness	Set to 29	30	1F0000000029	314630303030303030303239	Set to 29
21	Color	Set to 29	30	100000000029	313030303030303030303239	Set to 29
22	Tint	Set to 29	30	130000000029	313330303030303030303239	Set to 29
23	Sharpness	Set to 29	30	140000000029	313430303030303030303239	Set to 29
24	Color Temperature	Set to High	-	600000000000	363030303030303030303030	Set to High
25	Color Temperature	Set to Medium	-	600000000001	363030303030303030303031	Set to Medium
26	Color Temperature	Set to Standard	-	600000000002	363030303030303030303032	Set to Standard
27	Color Temperature	Set to B&W	-	600000000003	363030303030303030303033	Set to B&W
28	Aspect Ratio	Set to 16:9 Std.	-	400000000000	343030303030303030303030	Set to 16:9 Std.
29	Aspect Ratio	Set 16:9 Zoom	-	400000000001	343030303030303030303031	Set to 16:9 Zoom
30	Aspect Ratio	Set to 4:3 Standard	-	400000000002	343030303030303030303032	Set to 4:3 Standard
31	Aspect Ratio	Set to 4:3 Expanded	-	400000000003	343030303030303030303033	Set to 4:3 Expanded
32	Aspect Ratio	Set to 4:3 Zoom	-	400000000004	343030303030303030303034	Set to 4:3 Zoom
33	Aspect Ratio	Set to 4:3 Zoom 2	-	400000000005	343030303030303030303035	Set to 4:3 Zoom 2

Table 4.5.1 Write Data Command Summary (Continued)

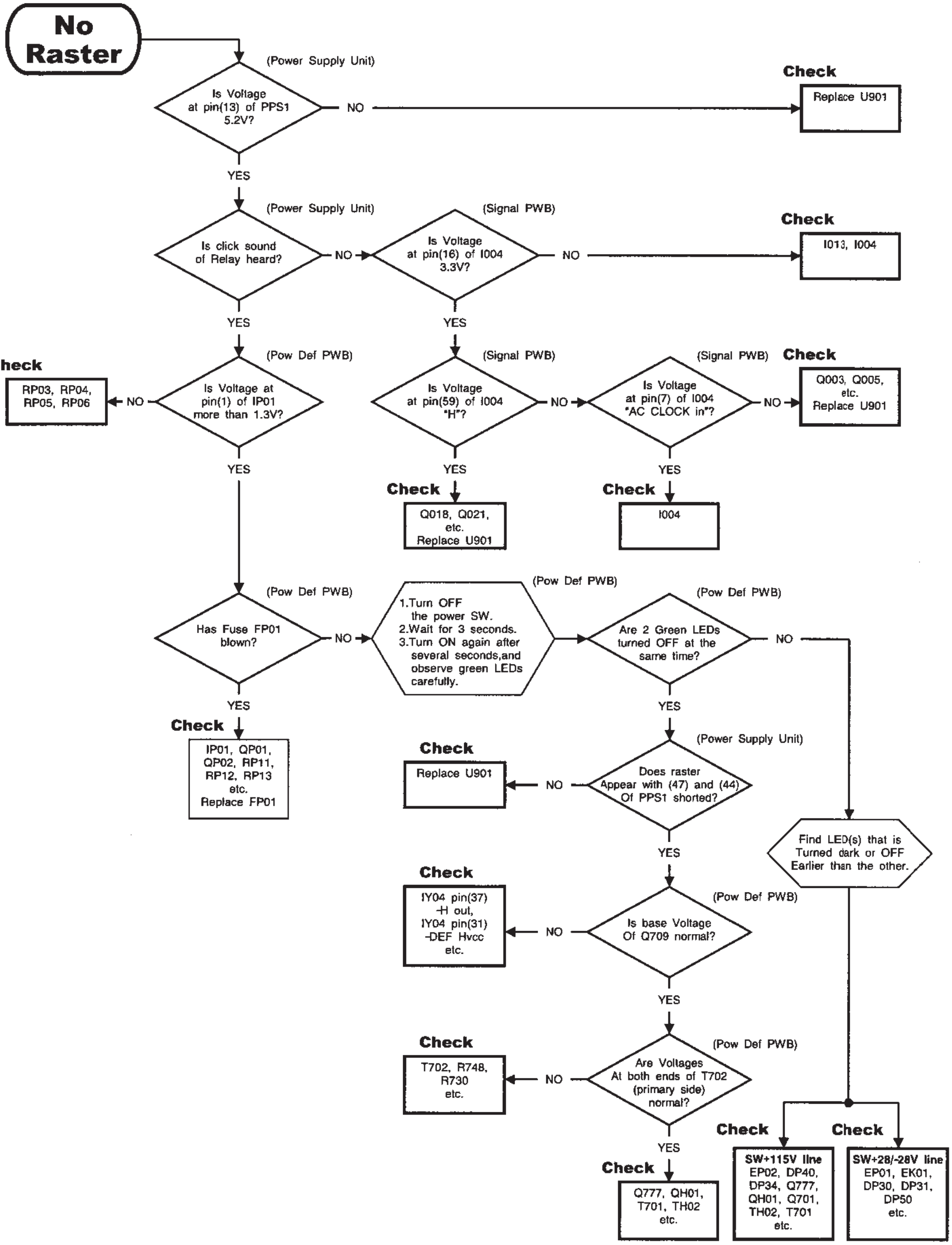
No.	Item	Command	Initial Condition	Hex Character	Hex Code Set	Result
34	Info	On	0	B20000000001	423230303030303030303031	Turns Info On
35	Info	Off	0	B20000000000	423230303030303030303031	Turns Info Off
36	Direct CH 0~9	Key Code to 0	-	D00000000000	443030303030303030303030	Key code to 0
37	Direct CH -	CH-	-	D00000010000	443030303030303130303030	CH-
38	Direct CH Select	Select CH	-	D00000020000	443030303030303230303030	CH Select
39	Virtual HD	Select 1080i	0	D30000000000	443330303030303030303030	Select 1080i
40	Virtual HD	Select 540p	0	D30000000001	443330303030303030303031	Select 540p
41	Auto Movie Mode	Auto Movie Off	-	D40000000000	443430303030303030303030	Auto Movie Off
42	Auto Movie Mode	Auto Movie On (Auto)	-	D40000000000	443430303030303030303031	Auto Movie On (Auto)

2-22 DP4X Protection Circuit Block Daigram (Deflection Power Supply)


LIVE
COLD
AC Input
Rectifier DP01
Fuse FP01:4A
Switching Transformer TP01
Switching Control IP01
Feed Back IP02
Voltage Control +115V:IP03
Rectifier +220V:DP33
Rectifier +28V:DP30
Rectifier +7V:DP32
Rectifier -28V:DP31
Rectifier +115V:DP34
Protector EK01:2000
Regulator +6.3V:QP04
Protector EP02:3000
DP50:+28V
DP40:+115V
DP46:>32V
DP45:<5V
DP46:>-24V
QP05:>1.8A
DP39:>133V
ZD
D
ZD
Q
ZD
Video: SW+220V
Conver / Vert: SW+28V
DCU: SW+7V
Heater: SW+6.3V
Conver / DCU: SW-28V
Deflection: SW+115V
Short CCT. Detector
Over Voltage Detector
= GREEN LED

2-23 TROUBLE SHOOTING

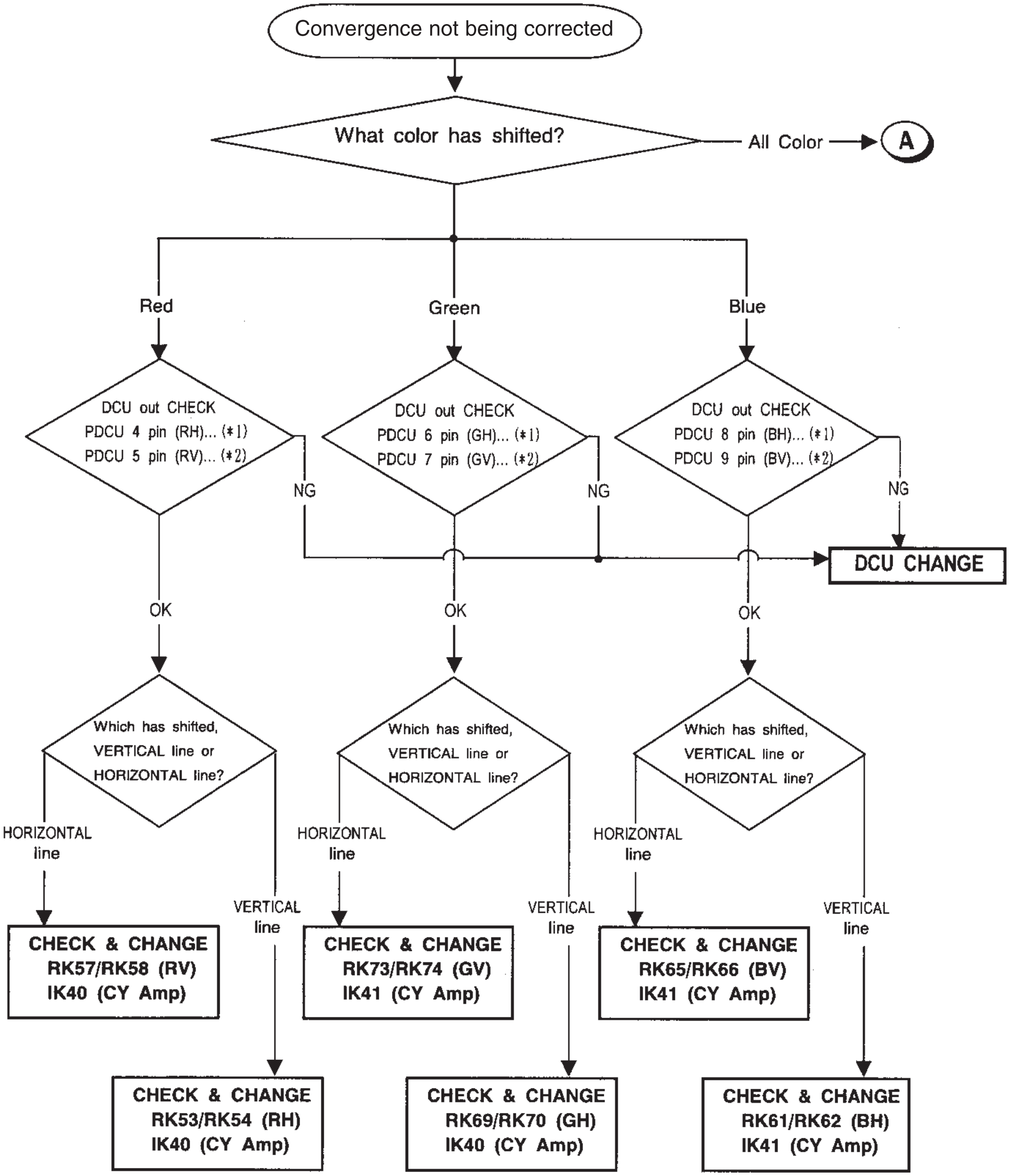
1. No raster and no power (How to check LED's Diagnosis)

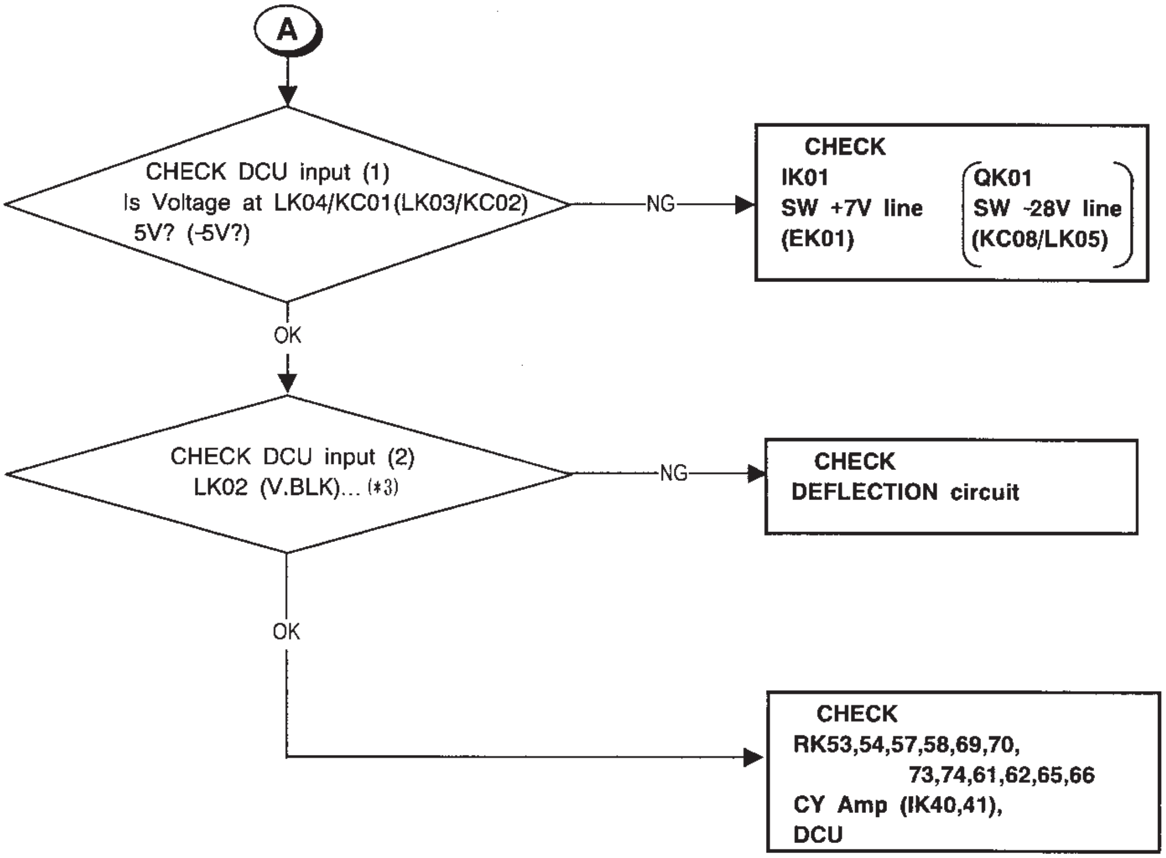

No Raster
(Power Supply Unit)
Is Voltage at pin(13) of PPS1 5.2V?
NO
Check
Replace U901
YES
(Power Supply Unit)
Is click sound of Relay heard?
NO
(Signal PWB)
Is Voltage at pin(16) of I004 3.3V?
NO
Check
I013, I004
YES
YES
(Pow Def PWB)
Check
RP03, RP04, RP05, RP06
NO
Is Voltage at pin(1) of IP01 more than 1.3V?
(Signal PWB)
Is Voltage at pin(59) of I004 "H"?
NO
(Signal PWB)
Is Voltage at pin(7) of I004 "AC CLOCK in"?
NO
Check
Q003, Q005, etc. Replace U901
YES
YES
Check
Q018, Q021, etc. Replace U901
YES
Check
I004
(Pow Def PWB)
Has Fuse FP01 blown?
NO
(Pow Def PWB)
1.Turn OFF the power SW.
2.Wait for 3 seconds.
3.Turn ON again after several seconds,and observe green LEDs carefully.
(Pow Def PWB)
Are 2 Green LEDs turned OFF at the same time?
NO
YES
Check
IP01, QP01, QP02, RP11, RP12, RP13 etc. Replace FP01
YES
(Power Supply Unit)
Check
Replace U901
NO
Does raster Appear with (47) and (44) Of PPS1 shorted?
YES
Find LED(s) that is Turned dark or OFF Earlier than the other.
Check
IY04 pin(37) -H out, IY04 pin(31) -DEF Hvcc etc.
NO
(Pow Def PWB)
Is base Voltage Of Q709 normal?
YES
Check
T702, R748, R730 etc.
NO
(Pow Def PWB)
Are Voltages At both ends of T702 (primary side) normal?
YES
Check
Q777, QH01, T701, TH02 etc.
Check
SW+115V line EP02, DP40, DP34, Q777, QH01, Q701, TH02, T701 etc.
Check
SW+28/-28V line EP01, EK01, DP30, DP31, DP50 etc.

TROUBLE SHOOTING

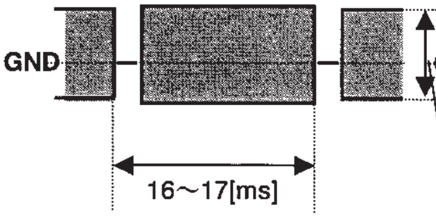
Trouble shooting for Convergence

1. Convergence not being corrected (How to check)

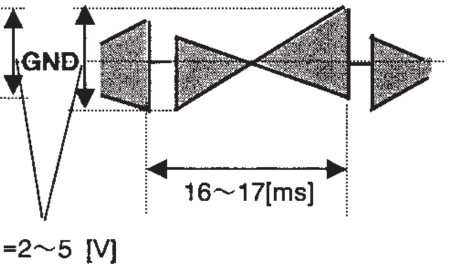

Convergence not being corrected
What color has shifted?
All Color
A
Red
Green
Blue
DCU out CHECK
PDCU 4 pin (RH)... (*1)
PDCU 5 pin (RV)... (*2)
DCU out CHECK
PDCU 6 pin (GH)... (*1)
PDCU 7 pin (GV)... (*2)
DCU out CHECK
PDCU 8 pin (BH)... (*1)
PDCU 9 pin (BV)... (*2)
NG
NG
NG
DCU CHANGE
OK
OK
OK
Which has shifted, VERTICAL line or HORIZONTAL line?
Which has shifted, VERTICAL line or HORIZONTAL line?
Which has shifted, VERTICAL line or HORIZONTAL line?
HORIZONTAL line
VERTICAL line
HORIZONTAL line
VERTICAL line
HORIZONTAL line
VERTICAL line
CHECK & CHANGE RK57/RK58 (RV) IK40 (CY Amp)
CHECK & CHANGE RK73/RK74 (GV) IK41 (CY Amp)
CHECK & CHANGE RK65/RK66 (BV) IK41 (CY Amp)
CHECK & CHANGE RK53/RK54 (RH) IK40 (CY Amp)
CHECK & CHANGE RK69/RK70 (GH) IK40 (CY Amp)
CHECK & CHANGE RK61/RK62 (BH) IK41 (CY Amp)


A
CHECK DCU input (1)
Is Voltage at LK04/KC01(LK03/KC02)
5V? (-5V?)
NG
CHECK
IK01
SW +7V line
(EK01)
QK01
SW -28V line
(KC08/LK05)
OK
CHECK DCU input (2)
LK02 (V.BLK)... (*3)
NG
CHECK
DEFLECTION circuit
OK
CHECK
RK53,54,57,58,69,70,
73,74,61,62,65,66
CY Amp (IK40,41),
DCU

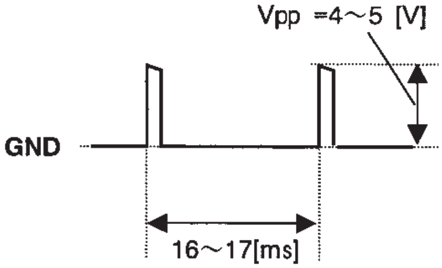
(*1) PDCU 4 pin (RH)
PDCU 6 pin (GH)
PDCU 8 pin (BH)



(*2) PDCU 5 pin (RV)
PDCU 7 pin (GV)
PDCU 9 pin (BV)

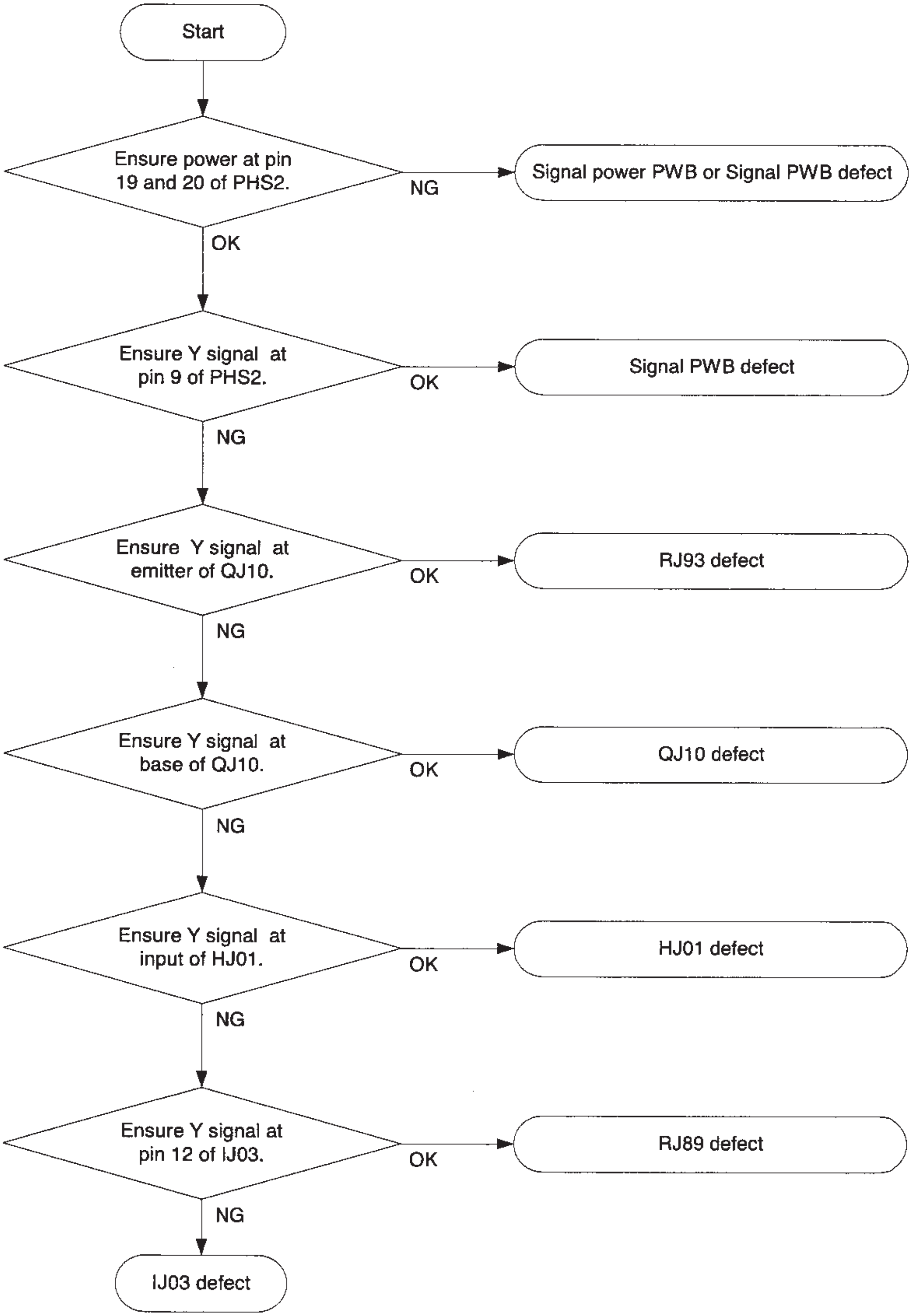

GND
16~17[ms]
Vpp =2~5 [V]

(*3) LK02 (V. BLK.)

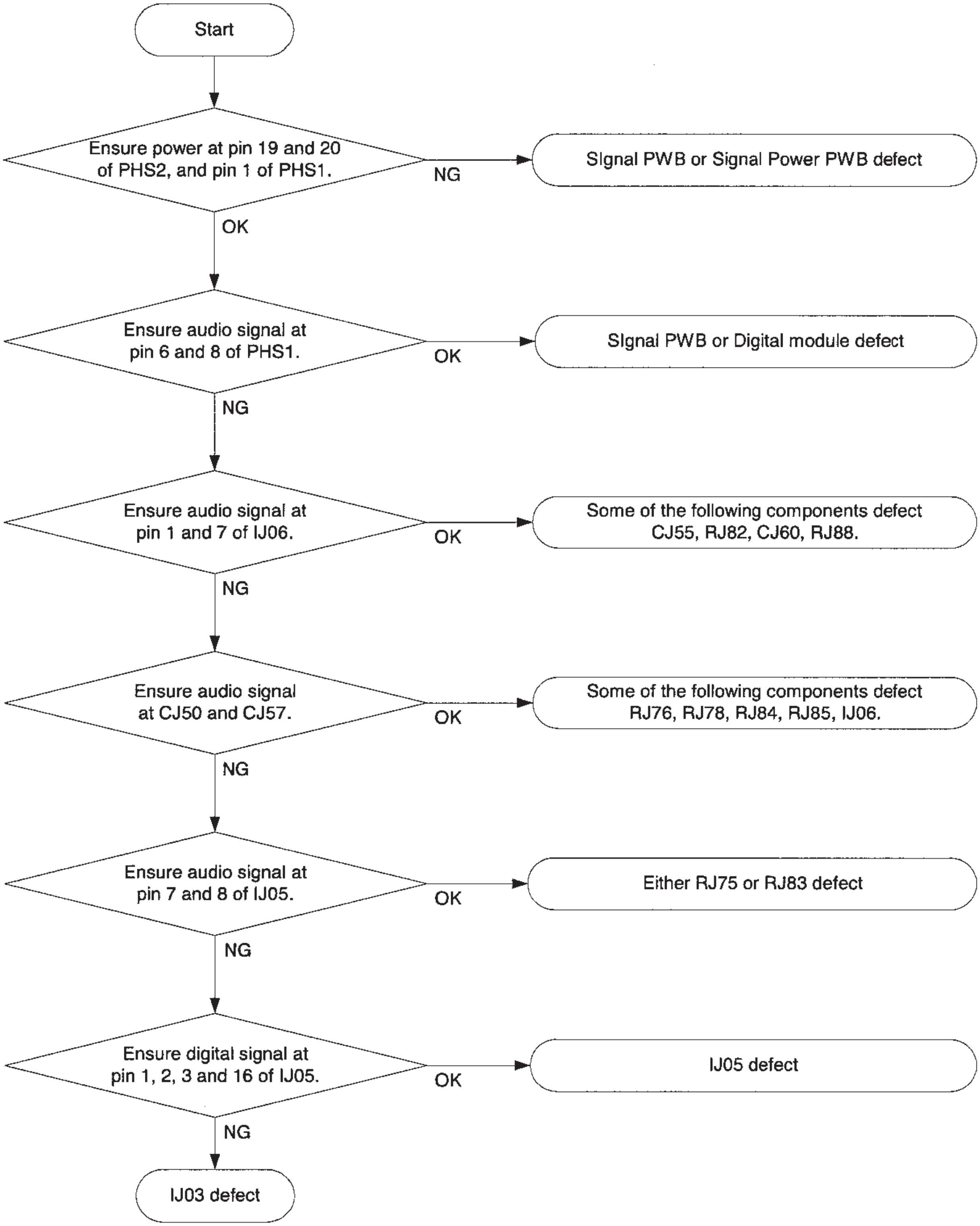

Vpp =4~5 [V]
GND
16~17[ms]

Trouble shooting for HDMI

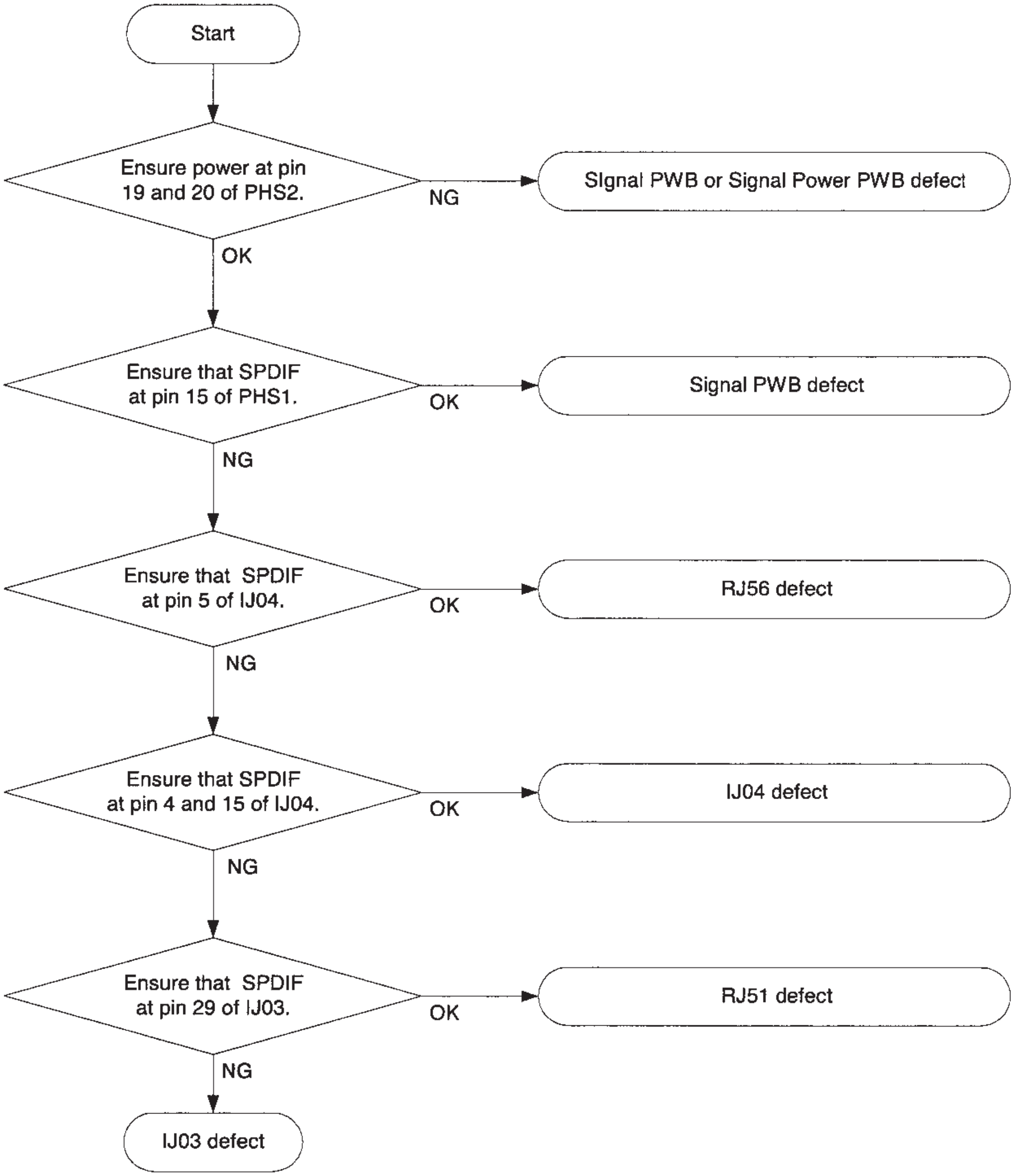
1. No HDMI picture


Start
Ensure power at pin 19 and 20 of PHS2.
NG
Signal power PWB or Signal PWB defect
OK
Ensure Y signal at pin 9 of PHS2.
OK
Signal PWB defect
NG
Ensure Y signal at emitter of QJ10.
OK
RJ93 defect
NG
Ensure Y signal at base of QJ10.
OK
QJ10 defect
NG
Ensure Y signal at input of HJ01.
OK
HJ01 defect
NG
Ensure Y signal at pin 12 of IJ03.
OK
RJ89 defect
NG
IJ03 defect

2. No HDMI analog audio


Start
Ensure power at pin 19 and 20 of PHS2, and pin 1 of PHS1.
NG
SIgnal PWB or Signal Power PWB defect
OK
Ensure audio signal at pin 6 and 8 of PHS1.
OK
SIgnal PWB or Digital module defect
NG
Ensure audio signal at pin 1 and 7 of IJ06.
OK
Some of the following components defect CJ55, RJ82, CJ60, RJ88.
NG
Ensure audio signal at CJ50 and CJ57.
OK
Some of the following components defect RJ76, RJ78, RJ84, RJ85, IJ06.
NG
Ensure audio signal at pin 7 and 8 of IJ05.
OK
Either RJ75 or RJ83 defect
NG
Ensure digital signal at pin 1, 2, 3 and 16 of IJ05.
OK
IJ05 defect
NG
IJ03 defect

3. No HDMI digital audio


Start
Ensure power at pin 19 and 20 of PHS2.
NG
SIgnal PWB or Signal Power PWB defect
OK
Ensure that SPDIF at pin 15 of PHS1.
OK
Signal PWB defect
NG
Ensure that SPDIF at pin 5 of IJ04.
OK
RJ56 defect
NG
Ensure that SPDIF at pin 4 and 15 of IJ04.
OK
IJ04 defect
NG
Ensure that SPDIF at pin 29 of IJ03.
OK
RJ51 defect
NG
IJ03 defect

DC VOLTAGES
Transistors

DC Voltages.

Signal PWB (1/5)

Transistors

Circuit No.	Pin No.	Voltage DC
Q003	E	0.3
	B	0.4
	C	1.6
Q005	E	0.3
	B	0.6
	C	1.6
Q006	E	0.0
	B	0.6
	C	0.1
Q007	E	0.0
	B	0.7
	C	0.0
Q008	E	4.6
	B	5.3
	C	9.2
Q009	E	5.1
	B	5.8
	C	9.2
Q010	E	6.2
	B	0.0
	C	0.0
Q012	E	5.7
	B	6.2
	C	0.5
Q014	E	0.0
	B	0.1
	C	3.1
Q015	E	0.0
	B	0.0
	C	9.2
Q016	E	0.0
	B	0
	C	3.5
Q017	E	0.0
	B	1.2
	C	3.1
Q018	E	0.0
	B	0.7
	C	0.0
Q019	E	0.0
	B	8.4
	C	3.3
Q021	E	5.2
	B	4.5
	C	5.2
Q023	E	0.0
	B	3.0
	C	0.0
Q024	E	5.1
	B	4.5
	C	5.1
Q026	E	2.5
	B	0.0
	C	5.1
Q028	E	0.0
	B	0.6
	C	0.0

Circuit No.	Pin No.	Voltage DC
Q030	E	5.1
	B	4.5
	C	5.1
Q031	E	0.0
	B	3.0
	C	0.0
Q032	E	5.2
	B	4.5
	C	5.2
Q036	D	0.0
	G	3.2
	S	0.0
Q037	D	0.0
	G	3.2
	S	0.0
Q038	E	0.0
	B	0.0
	C	5.1

IC's

Circuit No.	Pin No.	Voltage DC
I003	1	0.0
	2	0.0
	3	0.0
	4	3.3
	5	3.3
I004	1	0.2
	2	1.3
	3	3.2
	4	3.2
	5	NC
	6	0.0
	7	1.5
	8	0.0
	9	0.0
	10	NC
	11	NC
	12	3.1
	13	1.6
	14	0.8
	15	1.6
	16	3.2
	17	1.4
	18	NC
	19	3.2
	20	6.1
	21	11.0
	22	10.9
	23	3.0
	24	NC
	25	12.0
	26	1.6
	27	17.5
	28	5.0
	29	5.0
	30	5.0
	31	4.9
	32	14.2
	33	14.5
	34	14.7
	35	3.2
	36	3.3
	37	29.8
	38	15.3
	39	3.2
	40	3.2
	41	15.4

Circuit No.	Pin No.	Voltage DC
I004	42	5.6
	43	7.3
	44	3.2
	45	2.7
	46	3.21
	47	15.8
	48	15.8
	49	15.8
	50	3.2
	51	3.2
	52	3.1
	53	3.0
	54	3.1
	55	3.1
	56	15.7
	57	3.2
	58	3.2
	59	3.2
	60	NC
	61	15.5
	62	3.0
	63	15.5
	64	3.5
	65	NC
	66	NC
	67	NC
	68	27.6
	69	NC
	70	NC
	71	15.2
	72	3.2
	73	3.2
	74	NC
	75	3.0
	76	0.4
	77	2.7
	78	1.4
	79	3.0
	80	2.9
	81	3.2
	82	3.2
	83	33.0
	84	3.4
	85	3.2
	86	3.2
	87	3.2
	88	NC
	89	3.2
	90	NC
	91	3.2
	92	2.5
	93	2.0
	94	3.3
	95	0.4
	96	1.4
	97	2.0
	98	0.0
	99	5.0
	100	1.8

Circuit No.	Pin No.	Voltage DC
I005	1	NC
	2	NC
	3	5.3
	4	5.3
	5	0.0
	6	0.0
	7	0.0
	8	9.0
	9	9.0
	10	9.0
	11	NC
	12	NC
	13	NC
	14	NC
	15	NC
	16	9.0
I007	1	0.0
	2	0.0
	3	0.0
	4	0.0
	5	3.2
	6	3.2
	7	0.0
	8	3.3
I009	1	5.1
	2	3.2
	3	3.2
	4	3.2
	5	3.0
	6	3.2
	7	3.2
	8	0.0
	9	0.0
	10	0.0
	11	0.0
	12	0.0
	13	5.1
	14	5.1
	15	4.8
	16	5.1
	17	5.1
	18	4.8
	19	0.0
	20	5.1

Circuit No.	Pin No.	Voltage DC
I010	1	3.2
	2	0.0
	3	0.0
	4	0.0
	5	NC
	6	0.0
	7	0.0
	8	0.0
	9	5.1
	10	NC
	11	NC
	12	0.0
	13	3.2
	14	3.2
	15	3.2
	16	5.1
I003	1	3.3
	2	0.0
	3	0.0
	4	3.2
	5	3.3

DC VOLTAGES
Transistors (Continued)

Signal PWB (2/5)

Transistors

Circuit No.	Pin No.	Voltage DC
Q401	E	0.0
	B	0.7
	C	0.1
Q402	E	0.0
	B	0.0
	C	3.1
Q403	E	4.5
	B	3.8
	C	0.0
Q404	E	1.9
	B	1.4
	C	1.9
Q405	E	4.5
	B	3.8
	C	0.0
Q406	E	3.2
	B	2.7
	C	0.0
Q407	E	0.0
	B	3.8
	C	4.5
Q408	E	4.5
	B	3.9
	C	0.0
Q409	E	0.0
	B	0.0
	C	0.0
Q411	E	0.0
	B	0.0
	C	0
Q416	E	0.0
	B	0.1
	C	2.5
Q417	E	0.0
	B	0.0
	C	0.1
Q418	E	3.9
	B	4.5
	C	9.1
Q419	E	3.9
	B	4.6
	C	9.1
Q423	E	4.5
	B	3.9
	C	0.0
Q424	E	6.0
	B	0.0
	C	9.1
Q425	E	6.0
	B	6.7
	C	9.1
Q427	E	0.0
	B	6.7
	C	9.1

IC's

Circuit No.	Pin No.	Voltage DC
I401	1	4.6
	2	4.6
	3	4.6
	4	4.6
	5	4.6
	6	4.6
	7	4.6
	8	4.6
	9	4.6
	10	4.6
I401	11	NC
	12	NC
	13	4.6
	14	4.6
	15	4.6
	16	4.6
	17	4.6
	18	4.6
	19	4.6
	20	0.0
	21	0.0
	22	5.0
	23	5.0
	24	0.0
	25	4.5
	26	4.5
	27	4.5
	28	4.5
	29	4.5
	30	4.5
	31	9.1
	32	9.1
	33	4.6
	34	4.6
	35	4.6
	36	4.6
I402	1	5.5
	2	9.1
	3	5.5
	4	0.0
	5	5.5
	6	0.0
	7	5.5
	8	9.1
	9	5.5
	10	0.0
	11	5.5
	12	0.0
	13	5.5
	14	0.0
	15	5.5
	16	4.0
	17	5.5
	18	0.0
	19	5.5
	20	0.0
	21	5.5
	22	0.0
	23	5.5
	24	0.0
	25	5.5
	26	0.0
	27	5.5
	28	0.0
	29	5.5
	30	0
	31	5.5
	32	0.0
	33	NC
	34	0.0
	35	NC

DC VOLTAGES
Transistors (Continued)

Signal PWB (3/5)

Transistors

Circuit No.	Pin No.	Voltage DC
Q501	E	4.5
	B	3.9
	C	0.0
Q502	E	4.4
	B	3.8
	C	0.0
Q503	E	5.0
	B	4.4
	C	0.0
Q504	E	4.5
	B	3.9
	C	0.0
Q505	E	4.4
	B	3.8
	C	0.0
Q506	E	5.0
	B	4.4
	C	0.0

IC's

Circuit No.	Pin No.	Voltage DC
I501	1	NC
	2	NC
	3	5.0
	4	5.1
	5	4.2
	6	0.2
	7	4.1
	8	0.2
	9	4.1
	10	3.0
	11	0.0
	12	5.4
	13	5.3
	14	2.4
	15	NC
	16	3.9
	17	0.2
	18	3.8
	19	0.2
	20	4.4
	21	0.0
	22	NC
	23	NC
	24	NC
	25	NC
	26	NC
	27	5.2
	28	NC
	29	0.0
	30	NC
	31	0.0
	32	NC
	33	0.0
	34	NC
	35	5.2
	36	NC
	37	4.8
	38	NC
	39	8.9
	40	NC
	41	0.2
	42	4.2
	43	0.2
	44	4.1
	45	NC
	46	4.3
	47	NC
	48	NC
	49	0.0
	50	NC
	51	NC
	52	NC
	53	NC
	54	NC
	55	NC
	56	NC
	57	NC
	58	NC
	59	NC
	60	4.0
	61	NC
	62	4.2
	63	0.2
	64	4.2
	65	0.2
	66	4.0
	67	NC
	68	4.1
	69	NC
	70	4.2
	71	9.0
	72	NC
	73	NC
	74	NC
	75	NC
	76	NC
	77	5.2
	78	NC
	79	NC
	80	NC
I502	1	NC
	2	NC
	3	5.0
	4	5.0
	5	4.5
	6	0.2
	7	4.0
	8	0.2
	9	4.0
	10	3.0
	11	0.0
	12	5.4
	13	5.1
	14	NC
	15	NC
	16	3.9
	17	0.2
	18	3.8
	19	0.2
	20	4.4
	21	0.0
	22	NC
	23	NC
	24	NC
	25	NC
	26	3.9
	27	5.2
	28	NC
	29	0.0
	30	NC
	31	NC
	32	NC
	33	0.0
	34	NC
	35	0.0
	36	NC
	37	NC
	38	NC
	39	8.9
	40	NC
	41	NC
	42	NC
	43	NC
	44	NC
	45	NC
	46	NC
	47	NC
	48	NC
	49	0.0
	50	NC
	51	NC
	52	NC
	53	NC
	54	NC
	55	NC
	56	NC
	57	NC
	58	NC
	59	NC
	60	4.5
	61	NC
	62	4.2
	63	0.2
	64	4.2
	65	0.2
	66	4.0
	67	NC
	68	0.0
	69	NC
	70	4.2
	71	8.9
	72	NC
	73	NC
	74	NC
	75	NC
	76	NC
	77	5.2
	78	NC
	79	NC
	80	NC
I503	1	4.4
	2	0.2
	3	0.2
	4	5.0
	5	4.5
	6	0.2
	7	0.0
	8	4.0
	9	0.2
	10	0.2
	11	5.0
	12	0.0
	13	0.2
	14	0.0

DC VOLTAGES
Transistors (Continued)

Signal PWB (4/5)

Transistors

Circuit No.	Pin No.	Voltage DC
QV01	E	3.7
	B	0.0
	C	8.5
QV02	E	9.2
	B	8.5
	C	6.4
QV03	E	5.8
	B	6.4
	C	9.2
QV04	E	5.2
	B	5.9
	C	9.1
QV05	E	3.4
	B	4.0
	C	8.4
QV11	E	2.8
	B	2.2
	C	0.0
QV12	E	3.2
	B	3.2
	C	9.1
QV13	E	3.8
	B	3.2
	C	0.0
QV15	E	2.1
	B	1.4
	C	0.0
QV16	E	3.9
	B	3.3
	C	0.0
QV17	E	2.1
	B	1.4
	C	0.0
QV18	E	5.5
	B	6.1
	C	9.1
QV19	E	2.9
	B	3.5
	C	9.1
QV20	E	3.3
	B	3.9
	C	9.1
QV21	E	2.5
	B	2.5
	C	9
QV22	E	3.4
	B	4
	C	0.0
QV25	E	9.2
	B	9.0
	C	0.1
QV26	E	4.3
	B	4.9
	C	8.5
QV27	E	1.9
	B	2.5
	C	8.4
QV28	E	0.0
	B	0.0
	C	2.9
QV29	E	9.1
	B	8.5
	C	5.1
QV30	E	0.5
	B	0.1
	C	9.1
QV32	E	5.6
	B	8.3
	C	9.1
QV33	E	4.6
	B	5.3
	C	9.1
QV34	E	0.0
	B	0.0
	C	6.2
QV35	E	4.6
	B	5.2
	C	9.1
QV36	E	2.3
	B	2.9
	C	8.4
QV38	E	9.0
	B	8.4
	C	2.8
QV39	E	2.7
	B	3.3
	C	0.0
QV40	E	2.2
	B	2.8
	C	9.0
QV41	E	2.0
	B	2.6
	C	8.6
QV42	E	9.1
	B	8.5
	C	3.1
QV43	E	1.9
	B	2.5
	C	5.1
QV44	E	2.1
	B	2.7
	C	9.1
QV45	E	1.9
	B	2.5
	C	5.1
QV46	E	2.0
	B	2.6
	C	8.5
QV47	E	9.1
	B	8.5
	C	2.8
QV48	E	5.1
	B	5.8
	C	9.1
QV49	E	0.0
	B	0.8
	C	0.2
QV50	E	3.3
	B	3.4
	C	0.0
QV51	E	3.3
	B	3.2
	C	5.1
QV52	E	3.1
	B	3.7
	C	9.1
QV53	E	0.0
	B	5.6
	C	4.9
QV54	E	9.1
	B	8.4
	C	9.1
QV55	E	9.1
	B	8.4
	C	9.1
QV56	E	0.0
	B	0.0
	C	8.4
QV57	E	0.0
	B	0.7
	C	0.0

IC's

Circuit No.	Pin No.	Voltage DC
IV01	1	5.7
	2	5.1
	3	5.7
	4	4.0
	5	0.0
	6	0.0
	7	2.6
	8	2.6
IV02	1	0.0
	2	0.0
	3	0.0
	4	0.0
	5	0.0
	6	3.4
	7	3.4
	8	0.0
	9	0.0
	10	0.0
	11	0.0
	12	0.0
	13	0.0
	14	0.0
	15	0.0
	16	0.0
	17	0.0
	18	0.0
	19	0.0
	20	0.0
	21	0.0
	22	0.0
	23	0.0
	24	0.0
	25	0.0
	26	2.6
	27	2.7
	28	0.0
	29	0.0
	30	0.0
	31	3.4
	32	0.0
	33	0.0
	34	0.0
	35	0.0
	36	0.0
	37	1.2
	38	2.5
	39	2.5
	40	0.0
	41	0.0
	42	0.0
	43	0.0
	44	0.0
	45	0.0
	46	0.0
	47	3.3
	48	0.0
	49	0.0
	50	4.7
	51	0.0
	52	0.0
	53	1.3
	54	0.0
IV10	1	0.1
	2	4.5
	3	9.1
	4	5.3
	5	0.0
	6	5.3
IV12	1	4.1
	2	0.0
	3	4.1
	4	2.3
	5	0.0
	6	1.9
	7	6.2
	8	3.0
	9	4.8
	10	7.5
	11	0.0
	12	5.9
	13	3.5
	14	0.2
	15	1.2
	16	0.0
	17	0.2
	18	9.1
	19	9.1
	20	2.4
	21	3.6
	22	3.5
	23	9.1
	24	0.0
	25	1.1
	26	0.5
	27	0.5
	28	0.0
	29	1.5
	30	1.4
	31	1.4
	32	0.0
	33	5.1
	34	5.1
	35	0.4
	36	0.0
	37	2.3
	38	0.2
	39	0.2
	40	1.5
	41	5.1
	42	5.1
	43	0.0
	44	3.2
	45	0.2
	46	3.8
	47	2.4
	48	2.6
IV02	55	0.0
	56	0.0
	57	3.3
	58	0.1
	59	0.1
	60	6.0
	61	3.0
	62	1.6
	63	0.0
	64	0.0
	65	0.0
	66	0.0
	67	0.0
	68	0.0
	69	0.0
	70	0.0
	71	0.0
	72	0.0
	73	0.0
	74	0.0
	75	0.0
	76	0.0
	77	3.0
	78	0.0
	79	0.0
	80	0.0
	81	0.0
	82	0.0
	83	0.0
	84	0.0
	85	0.0
	86	2.5
	87	1.1
	88	1.6
	89	1.6
	90	1.1
	91	0.0
	92	0.0
	93	1.2
	94	0.6
	95	0.8
	96	1.3
	97	1.2
	98	2.5
	99	NC
	100	2.5
IV03	1	NC
	2	0.0
	3	0.0
	4	3.3
	5	3.3
IV04	1	0.0
	2	2.3
	3	2.3
	4	2.4
	5	1.4
	6	0.0
	7	0.0
	8	5.1
	9	0.0
	10	2.3
	11	2.1
	12	3.5
	13	3.9
	14	1.6
	15	3.7
	16	5.0
IV06	1	0.2
	2	3.4
	3	9.1
	4	4.8
	5	0.0
	6	4.2
IV07	1	0.1
	2	4.6
	3	9.1
	4	5.3
	5	0.0
	6	5.3
IV08	1	4.1
	2	4.1
	3	4.1
	4	2.1
	5	0.0
	6	1.9
	7	6.4
	8	3.2
	9	4.6
	10	7.6
	11	0.0
	12	6.0
	13	3.6
	14	0.2
	15	1.2
	16	0.0
	17	0.2
	18	9.1
	19	9.1
	20	3.6
	21	3.6
	22	3.1
	23	0.0
	24	0.0
	25	1.7
	26	0.8
	27	0.8
	28	0.0
	29	1.6
	30	1.6
	31	1.6
	32	0.0
	33	5.1
	34	5.1
	35	0.7
	36	0.0
	37	2.5
	38	0.2
	39	0.1
	40	3.0
	41	5.1
	42	5.1
	43	0.0
	44	1.5
	45	0.0
	46	3.8
	47	2.5
	48	2.6
IV09	1	0.1
	2	3.2
	3	9.1
	4	0.0
	5	0.0
	6	3.9

DC VOLTAGES
Transistors (Continued)

Signal PWB (5/5)

Transistors

Circuit No.	Pin No.	Voltage DC
QY01	E	4.3
	B	5.0
	C	9.0
QY02	E	3.8
	B	4.5
	C	9.1
QY03	E	3.8
	B	4.4
	C	9.1
QY07	E	0.0
	B	0.0
	C	9.2
QY09	E	5.4
	B	4.8
	C	9.2
QY10	E	0.0
	B	2.3
	C	3
QY11	E	0.6
	B	0.6
	C	0.0
QY12	E	0.0
	B	2.3
	C	3.0
QY13	E	5.3
	B	5.0
	C	9.2
QY14	E	0.0
	B	2.3
	C	3.0
QY15	E	0.6
	B	0.0
	C	9.2
QY16	E	5.3
	B	5.0
	C	9.2
QY17	E	0.0
	B	0.0
	C	9.2
QY18	E	3.8
	B	4.5
	C	9.2
QY19	E	0.3
	B	0.0
	C	8.9
QY20	E	9.2
	B	8.5
	C	0.0
QY21	E	0.0
	B	0.0
	C	9.2
QY22	E	0.0
	B	0.0
	C	9.2
QY23	E	3.0
	B	0.0
	C	0.0
QY24	E	0.7
	B	0.0
	C	0.0
QY25	E	0.7
	B	0.0
	C	0.0
QY26	E	0.7
	B	0.0
	C	0.0
QY27	E	1.1
	B	0.2
	C	9.3
QY28	E	1.1
	B	0.6
	C	9.3
QY29	E	0.7
	B	0.0
	C	0
QY32	E	0.7
	B	0
	C	0.0
QY34	E	0.7
	B	0.0
	C	0.0
QY39	E	0.0
	B	3.9
	C	9.3
QY40	E	1.6
	B	2.3
	C	3.5
QY41	E	3.5
	B	4.2
	C	7.9
QY42	E	0.0
	B	0.0
	C	9.1
QY46	E	0.9
	B	1.5
	C	89.5
QY47	E	1.1
	B	1.0
	C	0.0
QY48	E	9.2
	B	8.5
	C	4.1
QY49	E	9.1
	B	8.9
	C	0.0
QY50	E	5.3
	B	4.7
	C	0.0
QY51	E	8.0
	B	7.4
	C	3.6
QY52	E	3.6
	B	3.0
	C	0.0
QY53	E	8.0
	B	7.4
	C	3.8
QY54	E	3.8
	B	3.1
	C	0.0
QY55	E	7.5
	B	6.8
	C	3.0
QY56	E	4.0
	B	3.4
	C	0.0
QY57	E	0.0
	B	0.0
	C	8.9
QY58	E	7.8
	B	7.8
	C	0
QY59	E	7.7
	B	1
	C	9.3
QY60	E	0.0
	B	0.2
	C	2.6
QY62	E	11.0
	B	9.9
	C	10.5
QY63	E	0.0
	B	0.0
	C	9.6

IC's

Circuit No.	Pin Name	Voltage DC
IY01	1	5.7
	2	0.0
	3	3.3
IY02	1	5.7
	2	NC
	3	0.0
	4	4.8
	5	5.0
IY03	1	3.3
	2	NC
	3	3.3
	4	2.3
	5	0.0
	6	0.0
	7	1.8
	8	1.8
IY04	1	0.6
	2	0.0
	3	0.0
	4	4.8
	5	0.0
	6	4.9
	7	4.9
	8	9.2
	9	0.0
	10	0.0
	11	0.0
	12	2.3
	13	2.3
	14	2.3
	15	0.0
	16	9.2
	17	0.0
	18	4.0
	19	4.0
	20	0.0
	21	4.0
	22	0.0
	23	0.5
	24	4.0
	25	4.0
	26	4.0
	27	0.0
	28	5.0
	29	0.0
	30	5.0
IY04	31	2.1
	32	0.0
	33	0.0
	34	0.5
	35	5.0
	36	0.0
	37	0.9
	38	0.0
	39	1.0
	40	2.5
	41	2.9
	42	0.0
	43	0.0
	44	6.7
	45	9.2
	46	0.0
	47	NC
	48	0.0
	49	1.5
	50	3.0
	51	0.0
	52	3.2
	53	NC
	54	0.0
	55	0.0
	56	0.0
	57	7.8
	58	7.0
	59	0.0
	60	4.7
	61	4.7
	62	NC
	63	4.7
	64	0.1
	65	0.0
	66	4.7
	67	4.7
	68	4.7
	69	0.0
	70	5.5
	71	0.1
	72	0.0
	73	0.0
	74	5.6
	75	9.2
	76	0.0
IY04	77	4.1
	78	5.4
	79	0.0
	80	0.6
IY05	1	0.0
	2	0.0
	3	NC
	4	NC
	5	NC
	6	0.0
	7	0.0
	8	0.0
	9	0.5
	10	9.1
	11	0.5
	12	3.1
	13	4.9
	14	3.1
	15	0.0
	16	9.2
IY06	1	0.0
	2	4.8
	3	9.2
	4	9.0
	5	10.5
IY07	1	0.0
	2	4.8
	3	9.2
	4	9.0
	5	10.5

DC VOLTAGES
Transistors (Continued)

Tuner PWB

Transistors

Circuit No.	Pin No.	Voltage DC
Q302	E	3.0
	B	3.6
	C	5
Q303	E	0.3
	B	0.4
	C	1.6
Q304	E	2.9
	B	0.0
	C	0.0
Q305	E	3.5
	B	3.0
	C	0.0
Q306	E	3.0
	B	2.4
	C	0.0
Q308	E	0.0
	B	0.7
	C	0.1
Q309	E	0.0
	B	0.7
	C	0.0
Q311	E	0.0
	B	0.7
	C	0.0
Q313	E	0.0
	B	0.7
	C	0.0
Q314	E	4.5
	B	0.0
	C	0.0

IC's

Circuit No.	Pin No.	Voltage DC
I302	1	0.1
	2	0.1
	3	0.2
	4	0.2
	5	0.0
	6	0.0
	7	6.4
	8	0.0
	9	5.1
	10	0.0
	11	9.1
	12	1.3
	13	0.0
	14	0.1
	15	0.1
	16	4.4
	17	0.0
	18	0.0
	19	0.0
	20	0.0
	21	5.1
	22	5.1
	23	0.0
	24	2.2
	25	1.3
	26	2.8
	27	0.0
	28	4.5
	29	0
	30	0.4

DC VOLTAGES
Connectors

HDMI PWB

Connectors.

Circuit No.	Pin No.	Voltage DC
PH61	1	9.2
	2	0.0
	3	0.0
	4	0.0
	5	0.0
	6	0.0
	7	0.0
	8	0.0
	9	NC
	10	NC
	11	0.0
	12	0.0
	13	NC
	14	NC
	15	0.0
	16	0.0
PH62	1	NC
	2	NC
	3	0.0
	4	NC
	5	0.0
	6	1.3
	7	1.3
	8	0.0
	9	1.1
	10	0.0
	11	NC
	12	NC
	13	NC
	14	3.0
	15	3
	16	2.5
	17	0.0
	18	3.0
	19	5.1
	20	3.2
PH61	1	9.2
	2	0.0
	3	0.0
	4	0.0
	5	0.0
	6	0.0
	7	0.0
	8	0.0
	9	NC
	10	NC
	11	0.0
	12	0.0
	13	NC
	14	NC
	15	0.0
	16	0.0
PH62	1	NC
	2	NC
	3	0.0
	4	NC
	5	0.0
	6	1.3
	7	1.3
	8	0.0
	9	1.1
	10	0.0
	11	NC
	12	NC
	13	NC
	14	3.0
	15	3
	16	2.5
	17	0.0
	18	3.0
	19	5.1
	20	3.2
PH62	1	NC
	2	NC
	3	0.0
	4	NC
	5	0.0
	6	1.3
	7	1.3
	8	0.0
	9	1.1
	10	0.0
	11	NC
	12	NC
	13	NC
	14	3.0
	15	3
	16	2.5
	17	0.0
	18	3.0
	19	5.1
	20	3.2

DM(UV01)

Circuit No.	Pin No.	Voltage DC
PM61	1	9.2
	2	0.0
	3	0.0
	4	0.0
	5	0.0
	6	0.0
	7	0.0
	8	0.0
	9	NC
	10	NC
	11	0.0
	12	0.0
	13	NC
	14	NC
	15	0.0
	16	0.0
PM61	1	3.6
	2	3.6
	3	3.6
	4	3.6
	5	0.0
	6	0.0
	7	0.0
	8	5.7
	9	5.7
	10	0.0
	11	0.0
	12	5.6
	13	0.0
	14	0.0
	15	0.0
	16	0.0
	17	0.0
	18	0.0
	19	0.0
	20	0.0
	21	0.0
	22	0.0
	23	3.2
	24	3.2
	25	0.0
	26	0.0
	27	0.0
	28	0.0
	29	0.0
	30	0
	31	0.0
	32	0
	33	0.0
	34	0.0
	35	0.0
	36	0.0
	37	0.0
PM61	38	0.0
	39	0.0
	40	0.0
	41	0.0
	42	0.0
	43	0.0
	44	0.0
	45	0.0
	46	3.8
	47	3.8
	48	0.0
	49	0.0
	50	0.0

DC VOLTAGES
IC’s

FC(UY01)

Circuit No.	Pin No.	Voltage DC
PFC1	1	5.1
	2	0.0
	3	3.6
	4	3.6
	5	3.6
	6	0.0
	7	0.0
	8	4.9
	9	0.0
	10	5.0
	11	5.0
	12	4.8
	13	4.9
	14	0.0
	15	4.9
	16	0.0
	17	4.6
	18	4.4
	19	4.4
	20	0.0
	21	3.3
	22	3.3
PFC2	1	1.7
	2	1.7
	3	0.0
	4	0.0
	5	0.9
	6	3.2
	7	3.1
	8	0.0
	9	0.0
	10	0.0
	11	0.0
	12	0.5
	13	0.0
	14	0.0
	15	1.4
	16	0.0
	17	1.6
	18	0.0
	19	1.7
	20	4.9
	21	4.9

DC VOLTAGES
IC's (Continued)

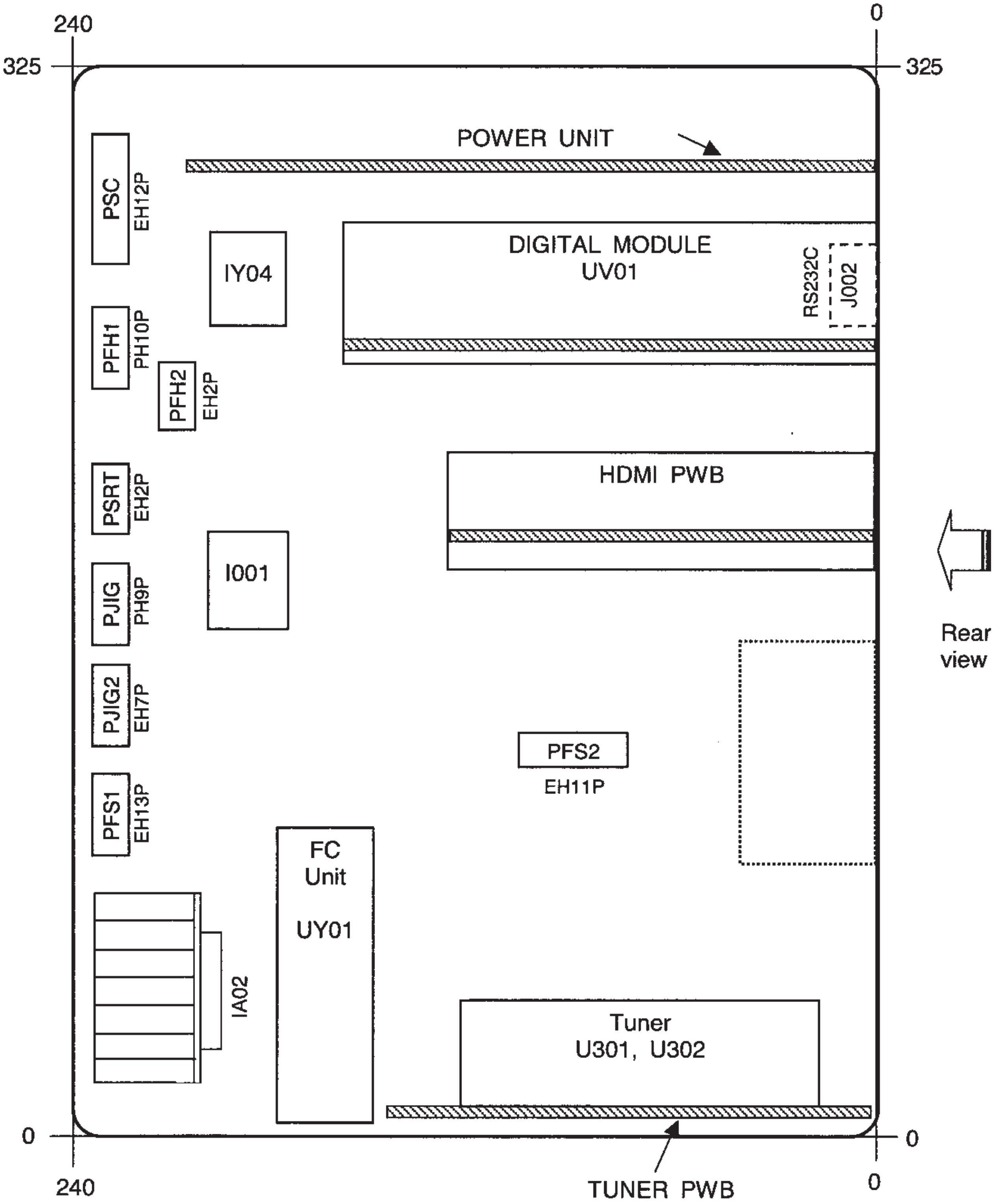
Power(U901)

Circuit No.	Pin No.	Voltage DC
PPS1	1	42.2
	2	0.0
	3	42.2
	4	0.0
	5	42.2
	6	0.0
	7	NC
	8	NC
	9	4.8
	10	0.6
	11	4.8
	12	4.8
	13	5.1
	14	0.0
	15	NC
	16	NC
	17	35.4
	18	0.0
	19	0.0
	20	0.0
	21	10.6
	22	10.6
	23	0.0
	24	0.0
	25	5.6
	26	0.0
	27	5.6
	28	5.6
	29	5.7
	30	5.7
	31	0.0
	32	0
	33	10.7
	34	0.0
	35	-5.6
	36	0.0
	37	3.6
	38	3.6
	39	3.6
	40	3.6
	41	0.0
	42	0.0
	43	0.0
	44	0.0
	45	2.5
	46	NC
	47	0
	48	NC
	49	NC
	50	NC

Circuit No.	Pin No.	Voltage DC
PPS2	1	0.0
	2	0.0
	3	0.0
	4	0.0
	5	0.0
PDG	1	4.8
	2	0.2
	3	0.0
	4	0.0
	5	0.0
	6	-0.2
	7	0.0
	8	0.0
	9	0.0
	10	-0.3
	11	0.0
	12	0.1
	13	0.0
	14	0.0
	15	0.3
	16	0.0
	17	4.9
	18	0.4
	19	0.0
	20	0.2
	21	0.0
	22	0.4
	23	0.0
	24	0.3
	25	0
	26	0.2
	27	0
	28	0.1
	29	0.0
	30	0.4
	31	0.0
	32	0.6
	33	0.0
	34	0.0
	35	0.0
	36	0.2
	37	0.0
	38	0.2
	39	0.0
	40	4.9
	41	0.0
	42	0
	43	NC
	44	-5.1

3.0 SIGNAL BLOCK ASSEMBLY

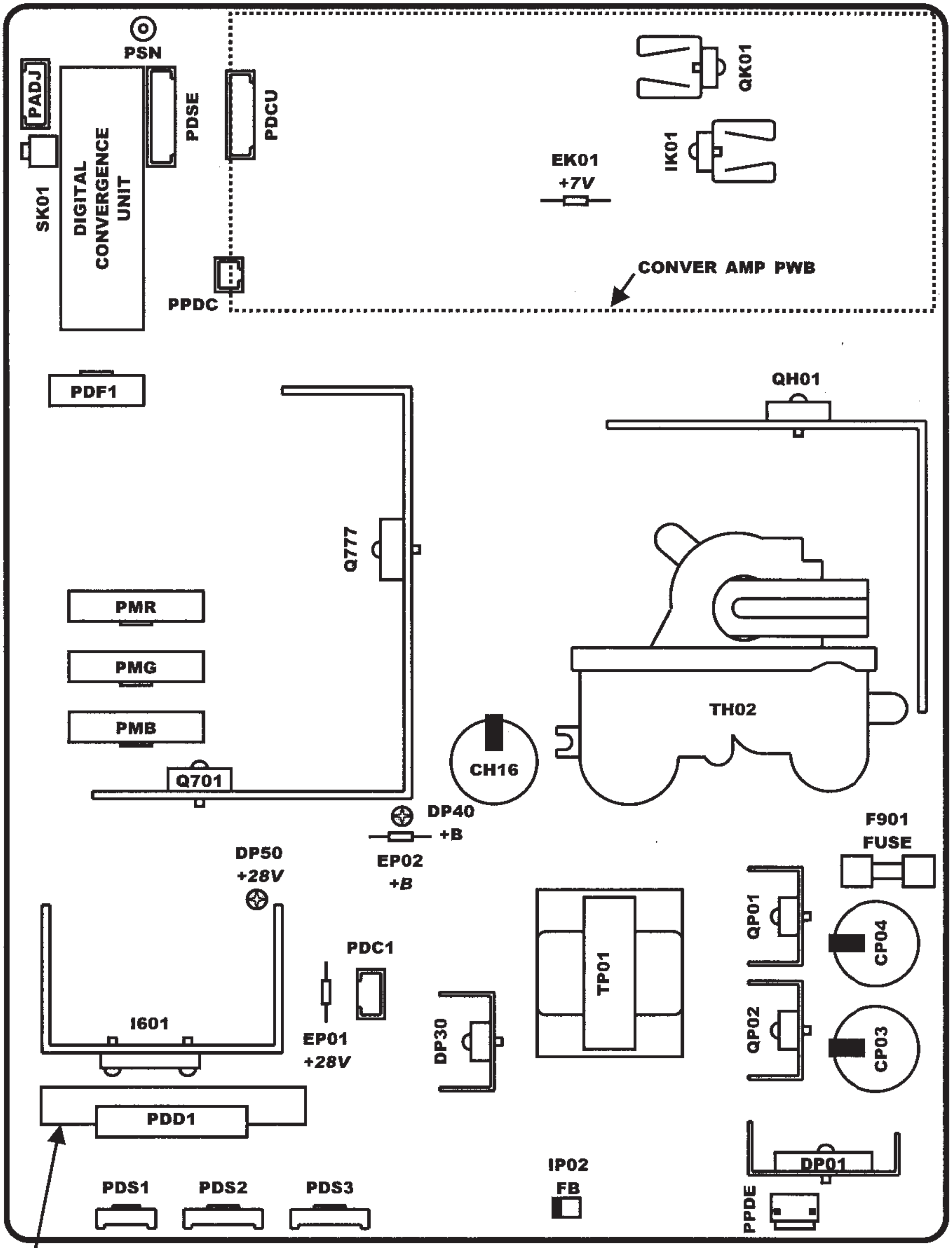
SIGNAL BLOCK ASY


240
0
325
325
POWER UNIT
PSC
EH12P
IY04
DIGITAL MODULE
UV01
RS232C
J002
PFH1
PH10P
PFH2
EH2P
HDMI PWB
PSRT
EH2P
I001
PJIG
PH9P
Rear view
PJIG2
EH7P
PFS2
EH11P
PFS1
EH13P
FC Unit
UY01
IA02
Tuner
U301, U302
0
0
240
TUNER PWB
0

BACK TO ADJUSTMENTS

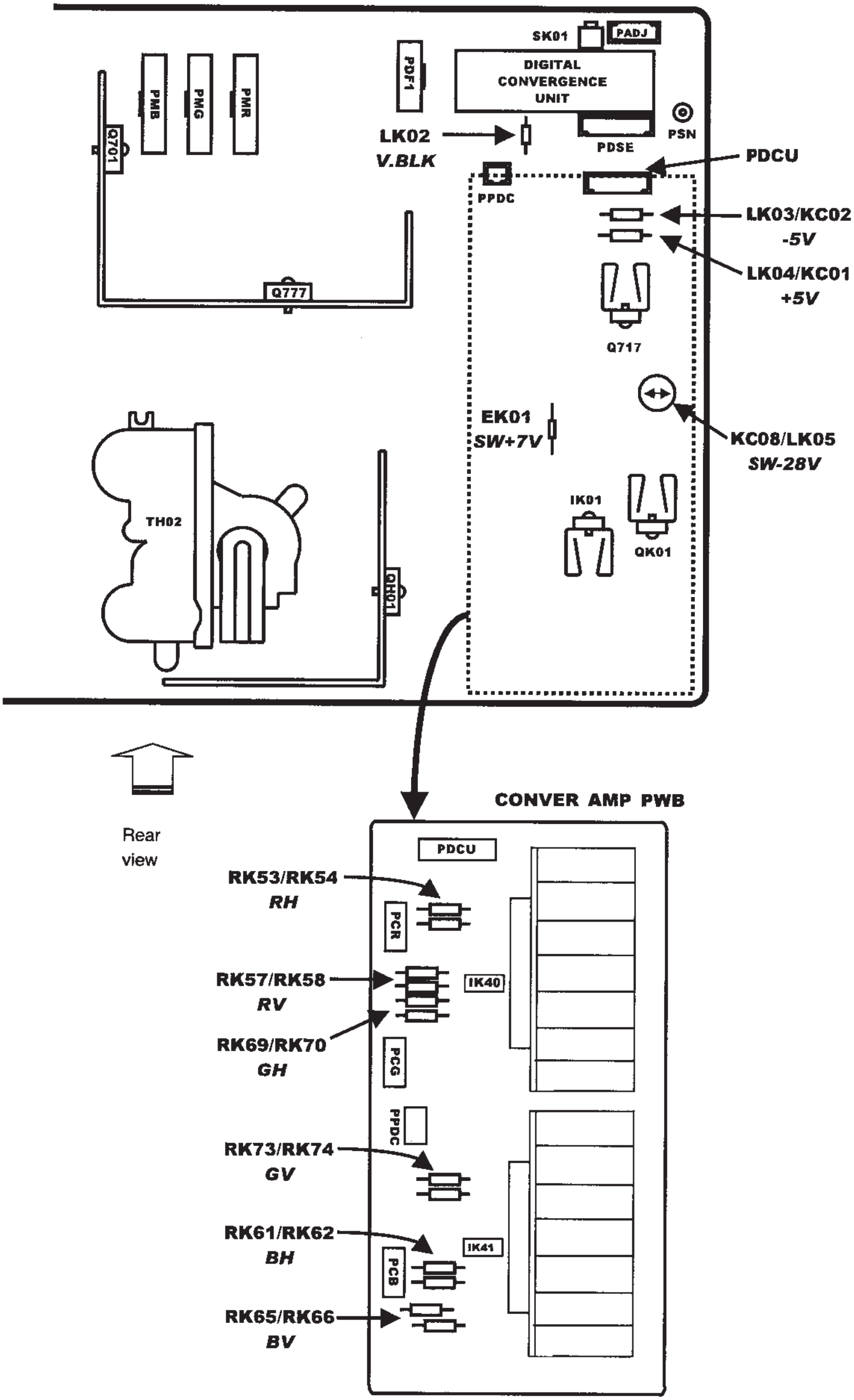
3.1 POWER/DEFLECTION BLOCK DIAGRAM

DP4X POW/DEF BLOCK ASY

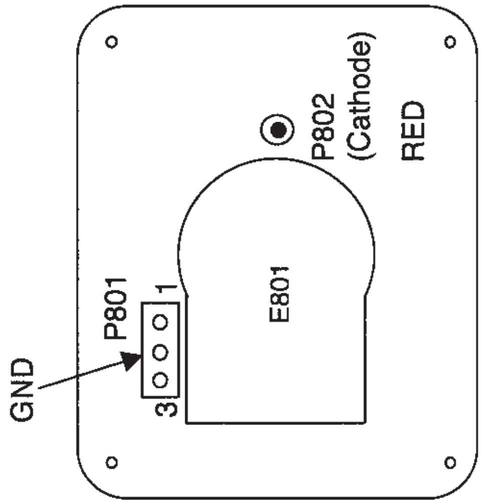

PSN
PADJ
SK01
DIGITAL CONVERGENCE UNIT
PDSE
PDCU
QK01
IK01
EK01
+7V
CONVER AMP PWB
PPDC
PDF1
QH01
Q777
PMR
PMG
PMB
Q701
TH02
CH16
DP40
+B
EP02
+B
DP50
+28V
F901
FUSE
PDC1
EP01
+28V
I601
DP30
TP01
QP01
CP04
QP02
CP03
PDD1
PDS1
PDS2
PDS3
IP02
FB
DP01
PPDE

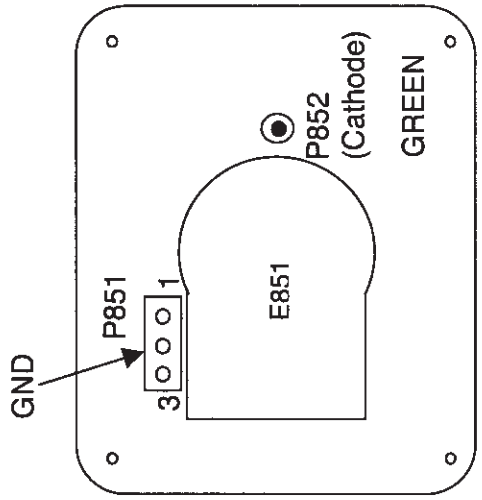
BACK TO ADJUSTMENTS

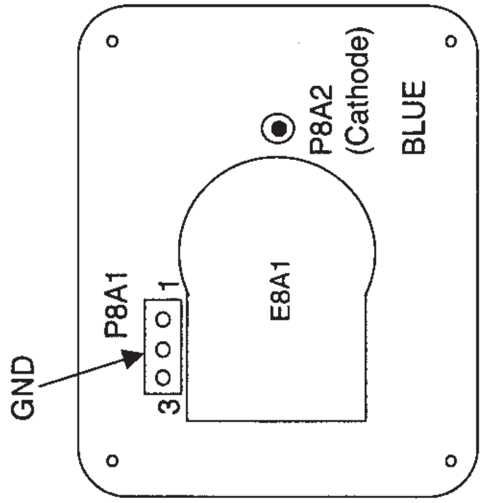
3.1 POWER/DEFLECTION P.W.B. (Continued)

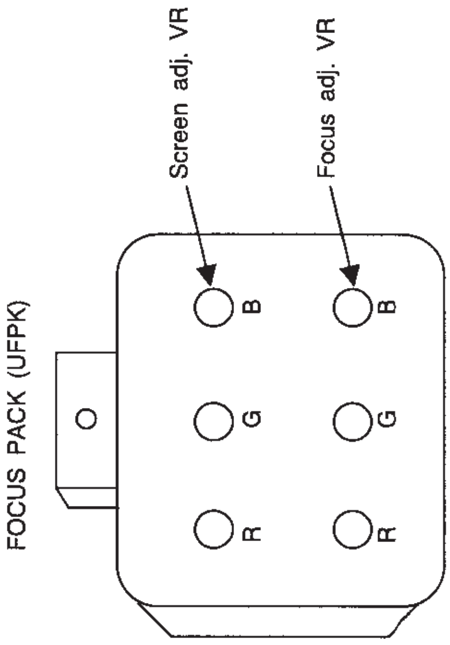

SK01
PADJ
PDF1
DIGITAL CONVERGENCE UNIT
PMB
PMG
PMR
Q701
LK02
V.BLK
PDSE
PSN
PDCU
PPDC
LK03/KC02
-5V
LK04/KC01
+5V
Q777
Q717
EK01
SW+7V
KC08/LK05
SW-28V
TH02
IK01
QK01
QH01
Rear view
CONVER AMP PWB
PDCU
RK53/RK54
RH
PCR
RK57/RK58
RV
IK40
RK69/RK70
GH
PCG
PPDC
RK73/RK74
GV
RK61/RK62
BH
IK41
PCB
RK65/RK66
BV

3.2 CPT P.W.B.


GND
P801
3
1
E801
P802
(Cathode)
RED


GND
P851
3
1
E851
P852
(Cathode)
GREEN

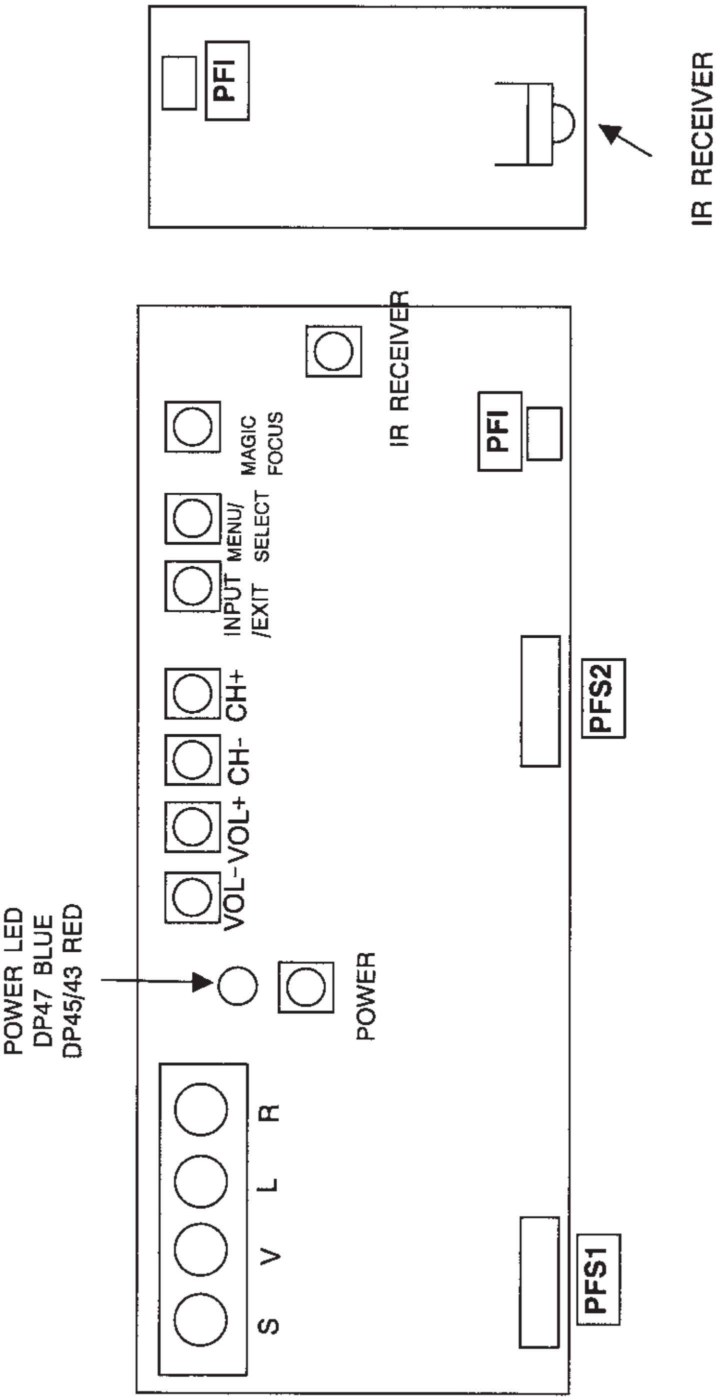

GND
P8A1
3
1
E8A1
P8A2
(Cathode)
BLUE


Screen adj. VR
Focus adj. VR
FOCUS PACK (UFPK)
B
G
R
B
G
R

FOCUS PACK

BACK TO ADJUSTMENTS

3.3 CONTROL P.W.B.

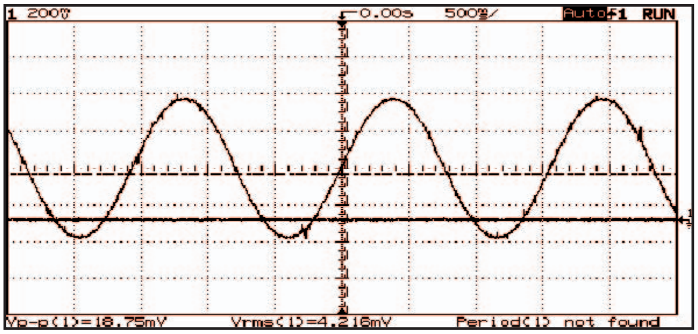

PFI
IR RECEIVER
IR RECEIVER
MAGIC FOCUS
MENU/ SELECT
INPUT /EXIT
CH+
CH-
VOL+
VOL-
PFI
PFS2
POWER LED
DP47 BLUE
DP45/43 RED
POWER
S
V
L
R
PFS1

BACK TO ADJUSTMENTS

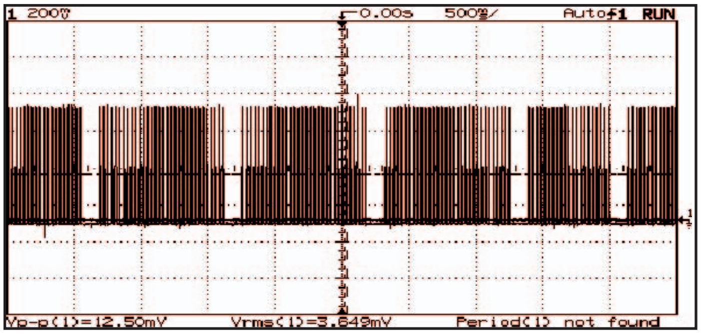
WAVEFORMS AT EACH SECTION

Numbers inside circle correspond to locations shown in the circuit diagram. Waveforms taken using a Color Bar signal with H. sync 31 khz and V. sync 60 hz and a X10 probe.

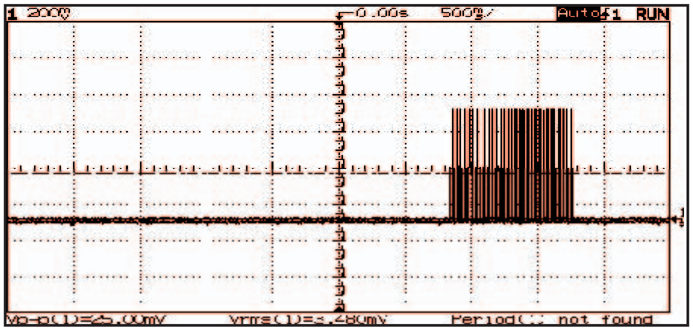
① I004 P13 (OSC OUT)



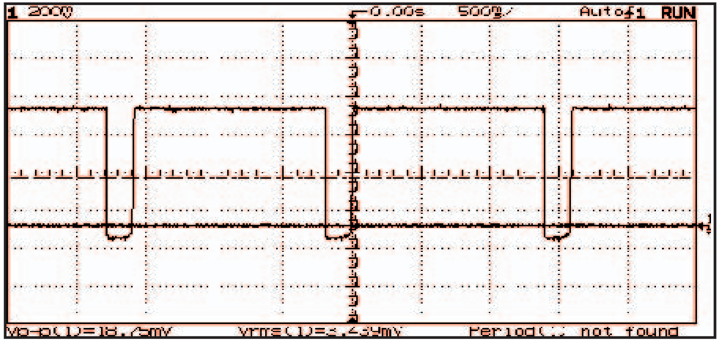
② I004 P21 (OSD BLK)



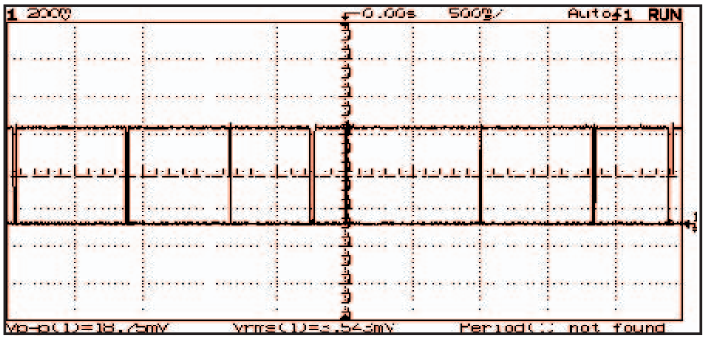
③ I004 P22 (HALF TONE)



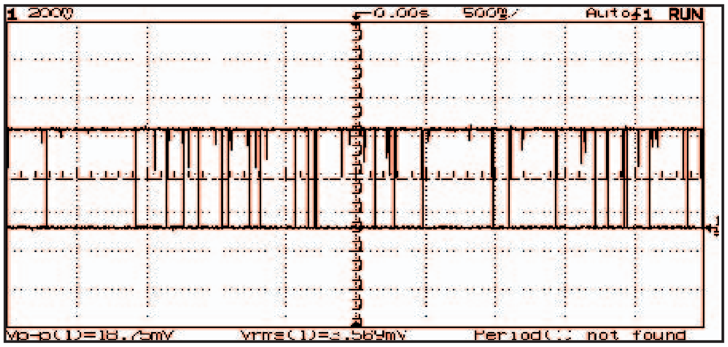
④ I004 P23 (SYNC. DET)



⑤ I004 P28 (SCL2)



⑥ I004 P29 (SCL1)

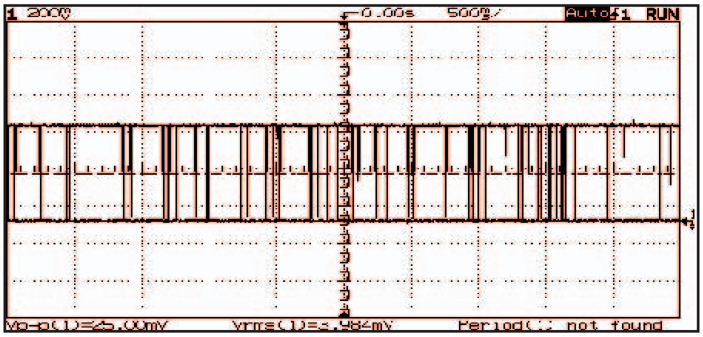


BACK TO TABLE OF CONTENTS

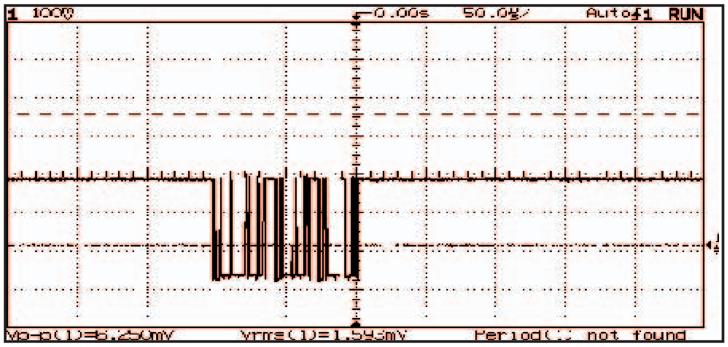
WAVEFORMS AT EACH SECTION

Numbers inside circle correspond to locations shown in the circuit diagram. Waveforms taken using a Color Bar signal with H. sync 31 khz and V. sync 60 hz and a X10 probe.

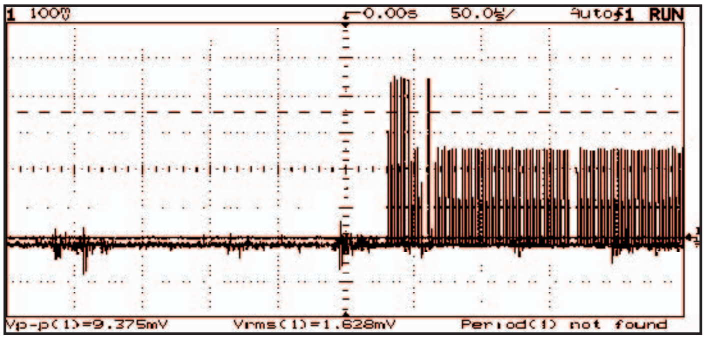
⑦ I004 P30 (SDA1)



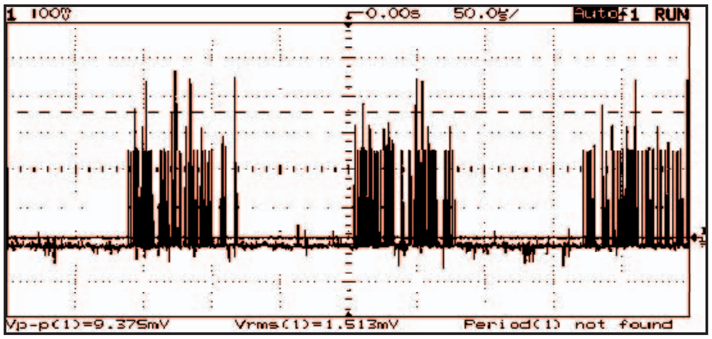
⑧ I004 P31 (SDA2)



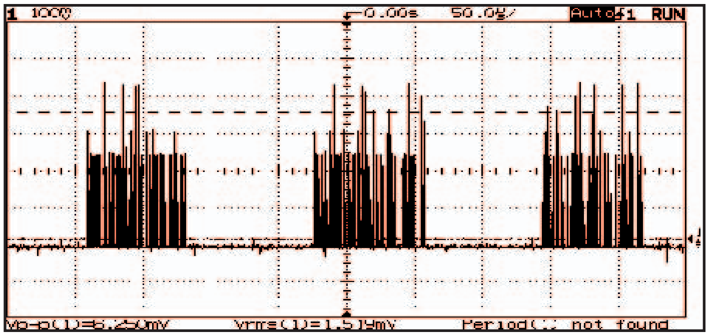
⑨ I004 P32 (OSD R)



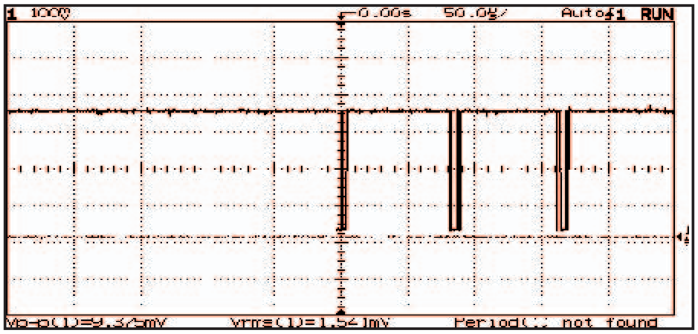
⑩ I004 P33 (OSD G)



⑪ I004 P34 (OSD B)



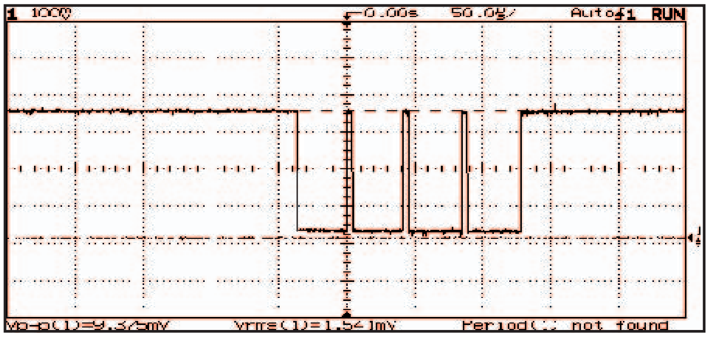
⑫ I004 P52 (FC DATA OUT)



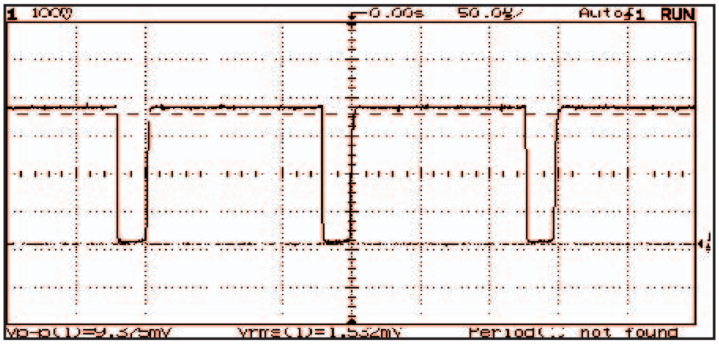
WAVEFORMS AT EACH SECTION

Numbers inside circle correspond to locations shown in the circuit diagram. Waveforms taken using a Color Bar signal with H. sync 31 khz and V. sync 60 hz and a X10 probe.

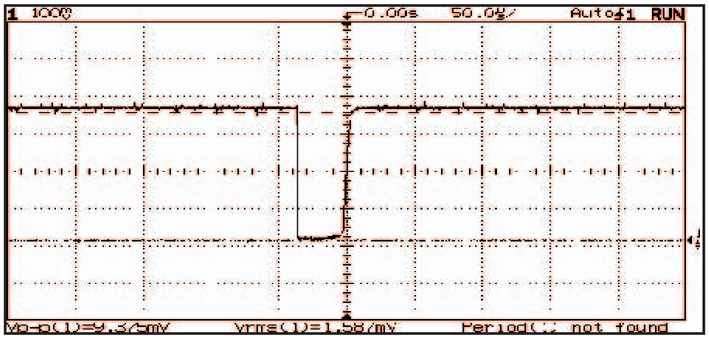
⑬ I004 P54 (FC ENABLE)



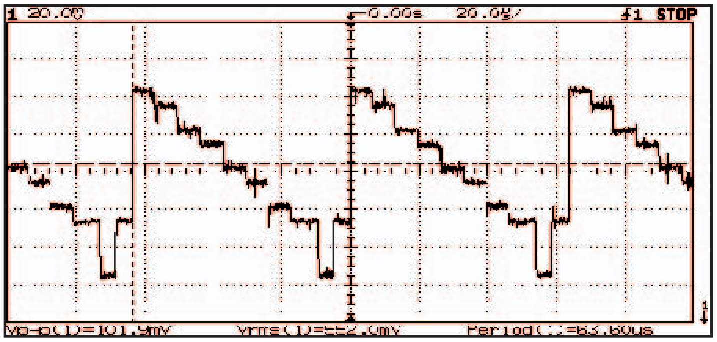
⑭ I004 P62 (OSD H-SYNC IN)



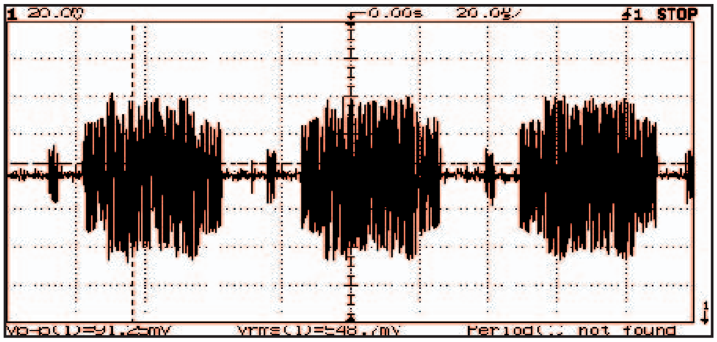
⑮ I004 P64 (OSD V-SYNC IN)



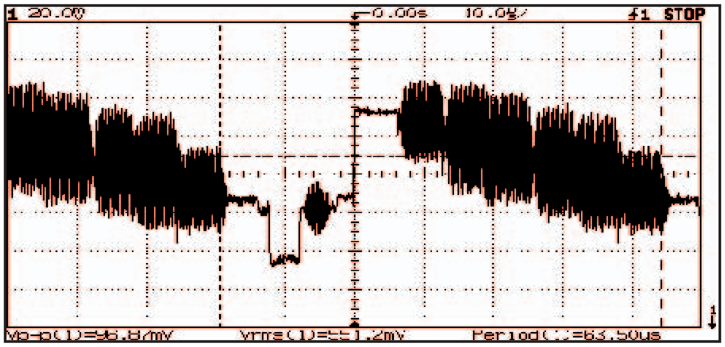
⑯ I002 P11 (DM Y IN)



⑰ I402 P13 (DM C IN)



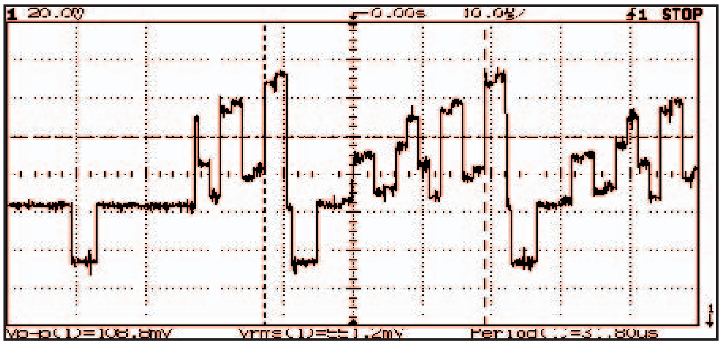
⑱ I402 P15 (MAIN TV IN)



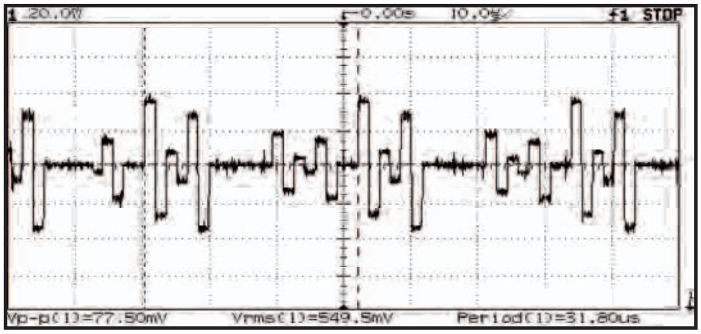
WAVEFORMS AT EACH SECTION

Numbers inside circle correspond to locations shown in the circuit diagram. Waveforms taken using a Color Bar signal with H. sync 31 khz and V. sync 60 hz and a X10 probe.

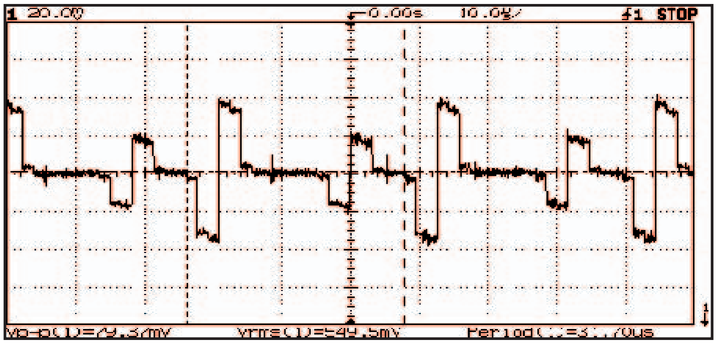
⑲ I402 P39 (HDMI Y IN)



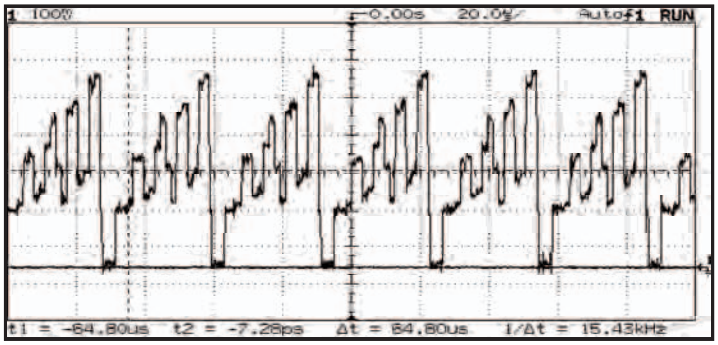
⑳ I402 P41 (HDMI Pb IN)



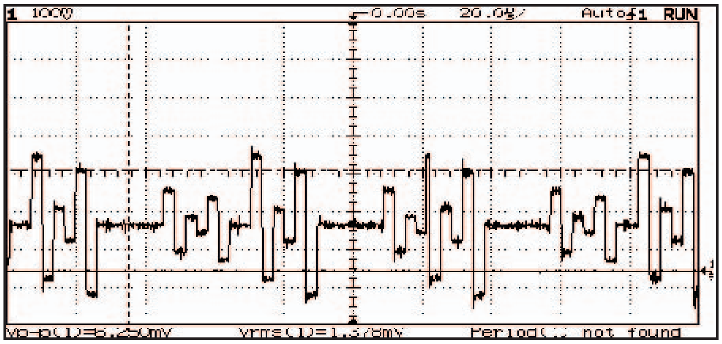
㉑ I402 P43 (HDMI Pr IN)



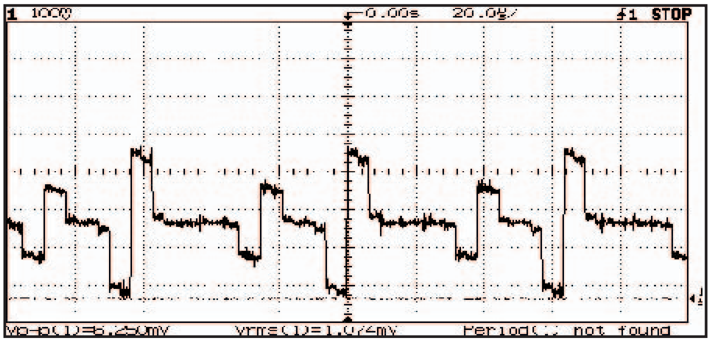
㉒ I502 P5 (MAIN Y IN)



㉓ I502 P7 (MAIN Pb IN)



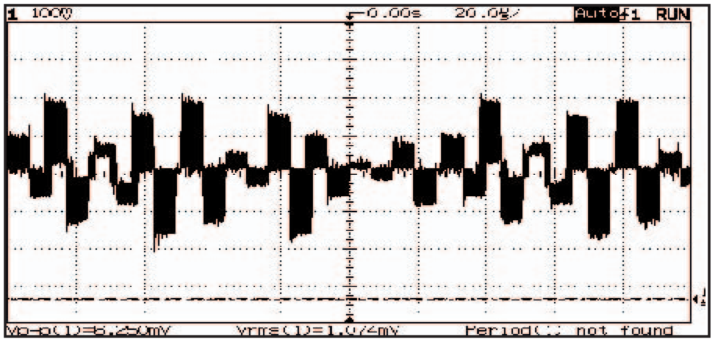
㉔ I502 P9 (MAIN Pr IN)



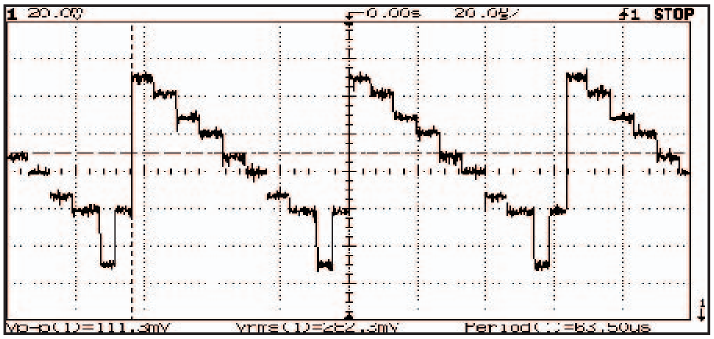
WAVEFORMS AT EACH SECTION

Numbers inside circle correspond to locations shown in the circuit diagram. Waveforms taken using a Color Bar signal with H. sync 31 khz and V. sync 60 hz and a X10 probe.

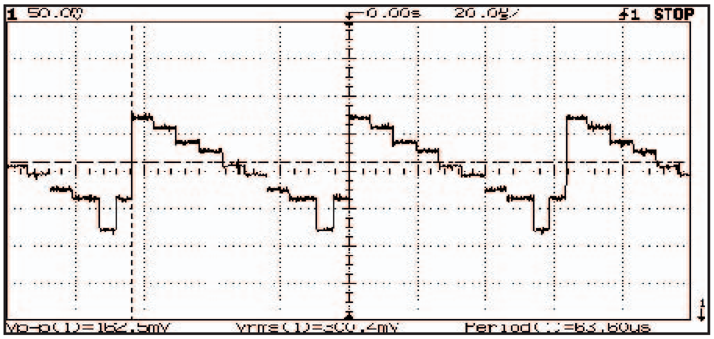
㉕ IV08 P6 (C IN)



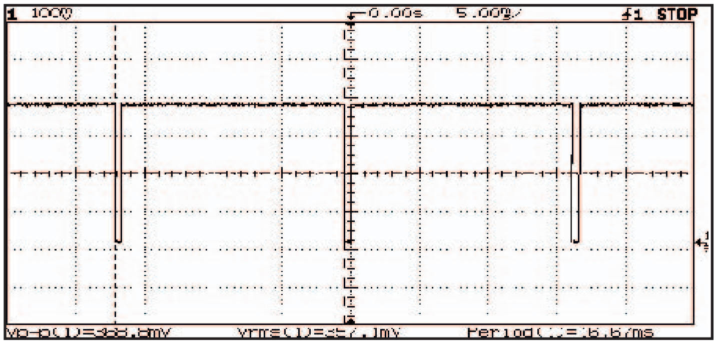
㉖ IV08 P40 (Y IN)



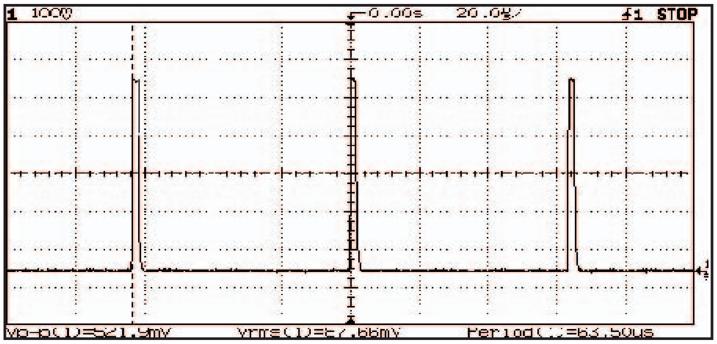
㉗ IV08 P8 (SYNC IN)



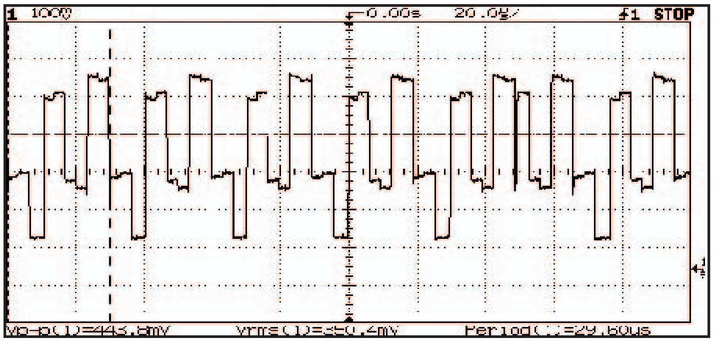
㉘ IV08 P13 (VD OUT)



㉙ IV08 P14 (HD OUT)



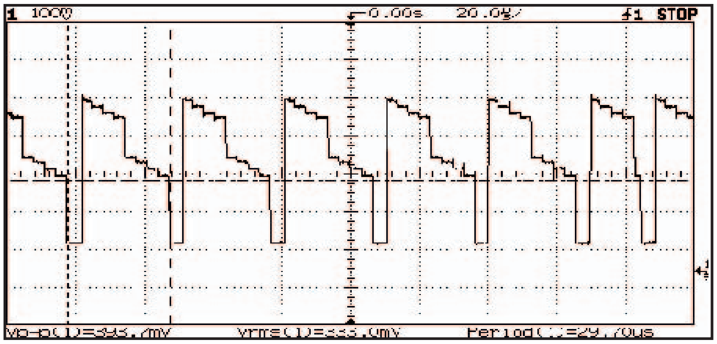
㉚ IYO4 P12 (R OUT)



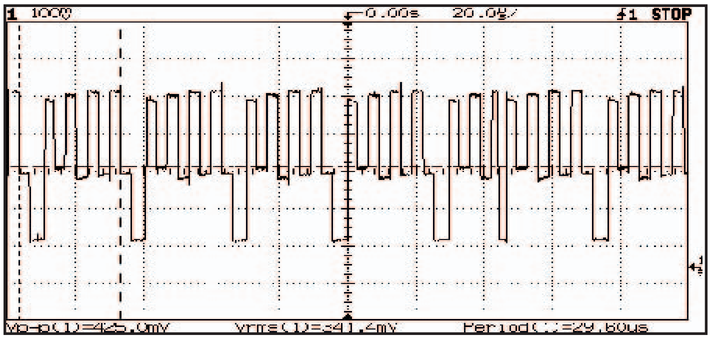
WAVEFORMS AT EACH SECTION

Numbers inside circle correspond to locations shown in the circuit diagram. Waveforms taken using a Color Bar signal with H. sync 31 khz and V. sync 60 hz and a X10 probe.

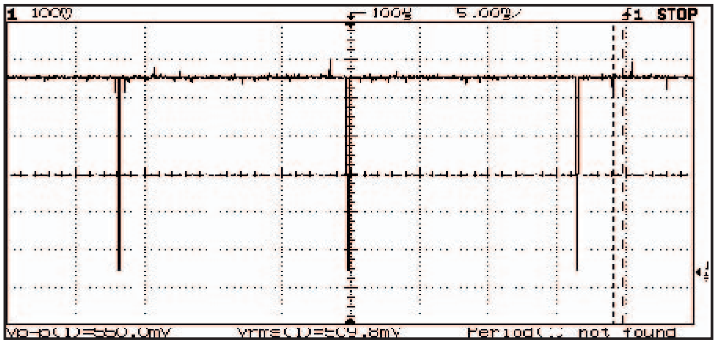
㉛ IYO4 P13 (G OUT)



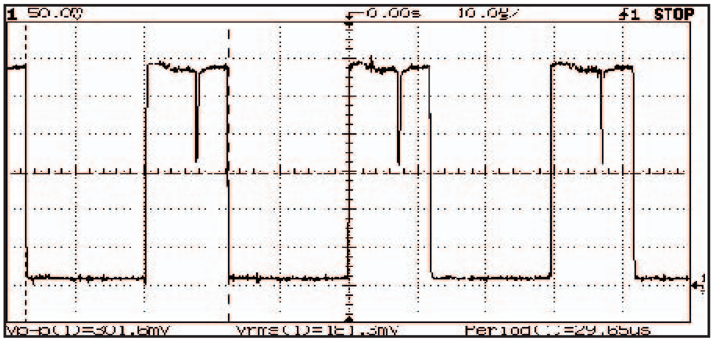
㉜ IYO4 P14 (B OUT)



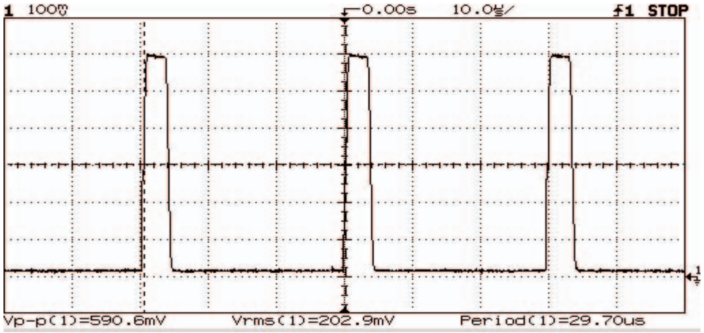
㉝ IY04 P35 (VP OUT)



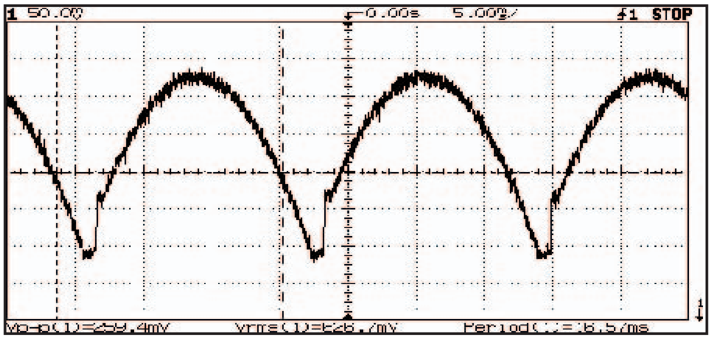
㉞ IY04 P37 (H OUT)



㉟ IY04 P39 (FBP IN)



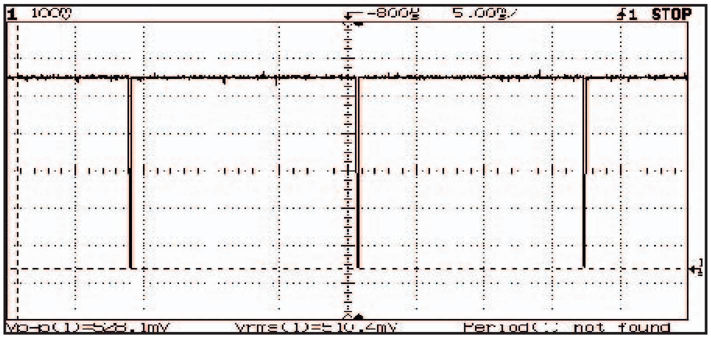
㊱ PDD1 P01 (V. PARABOLA)



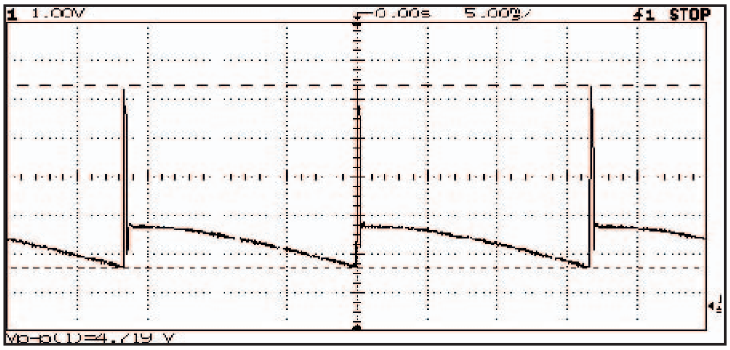
WAVEFORMS AT EACH SECTION

Numbers inside circle correspond to locations shown in the circuit diagram. Waveforms taken using a Color Bar signal with H. sync 31 khz and V. sync 60 hz and a X10 probe.

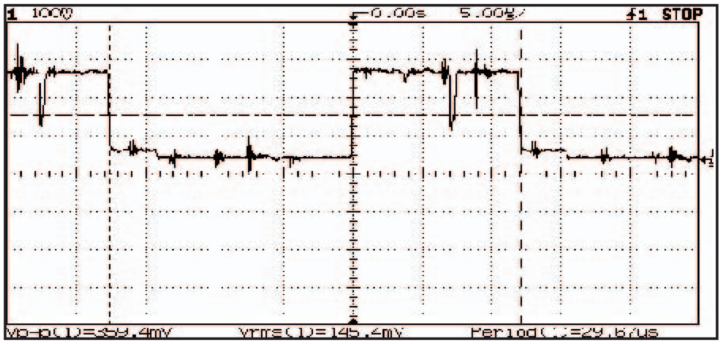
㊲ PDD1 P04 (V. DRIVE)



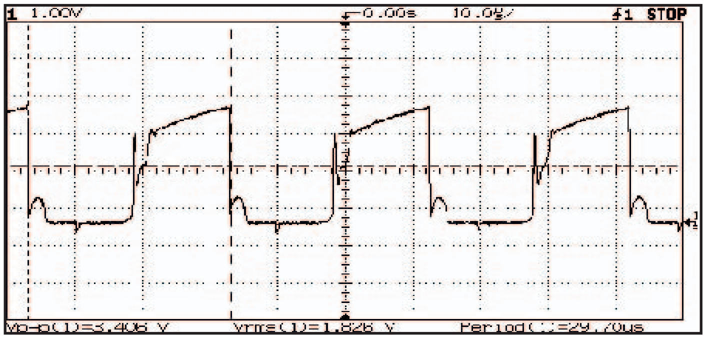
㊳ I601 P03 (V. OUT)



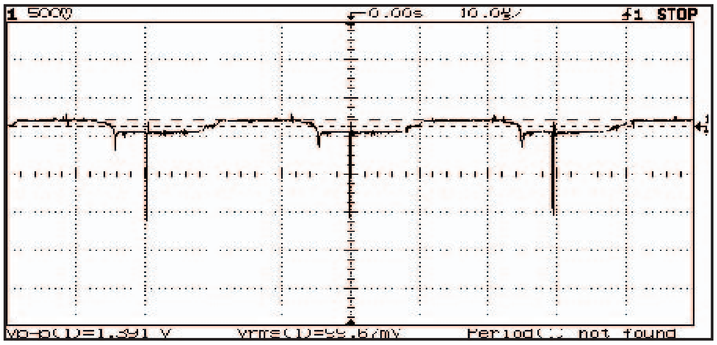
㊴ PDS2 P06 (H. DRIVE)



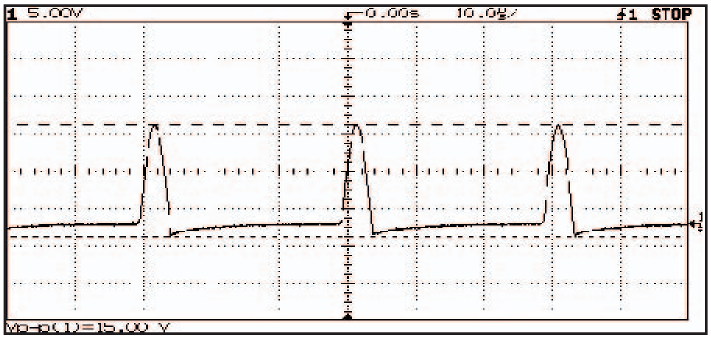
㊵ Q709 C (H. DRIVER)



㊶ Q777 B (H. IN)



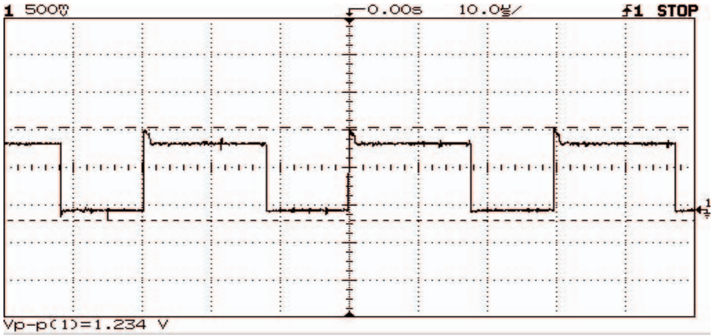
㊷ Q777 C (H. OUT)



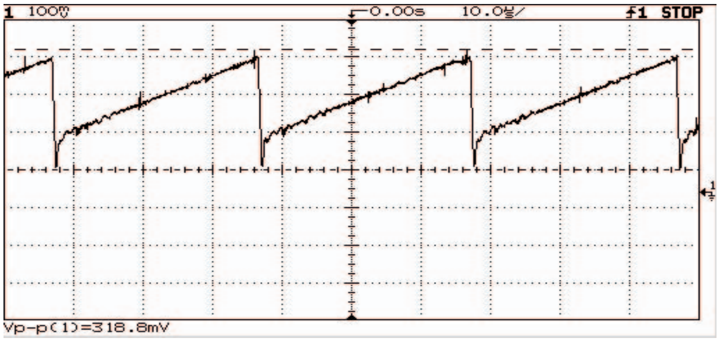
WAVEFORMS AT EACH SECTION

Numbers inside circle correspond to locations shown in the circuit diagram. Waveforms taken using a Color Bar signal with H. sync 31 khz and V. sync 60 hz and a X10 probe.

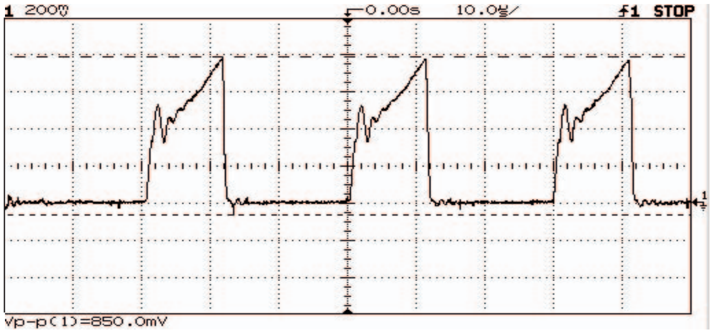
㊸ IH01 P01 (HV DRIVE)



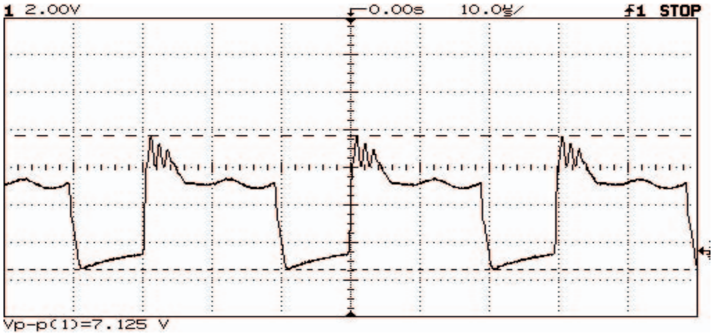
㊹ IH01 P04 (RAMP GEN.)



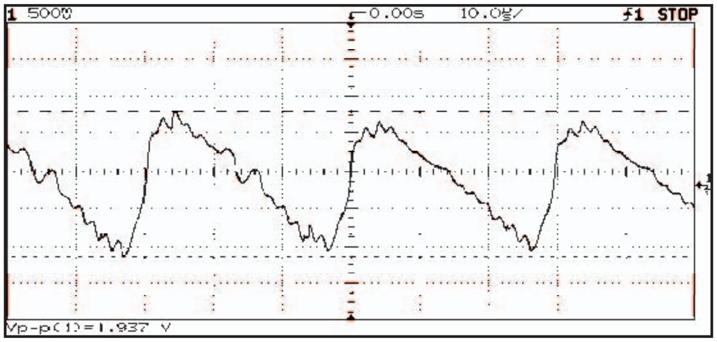
㊺ QH01 G (HV DRIVE IN)



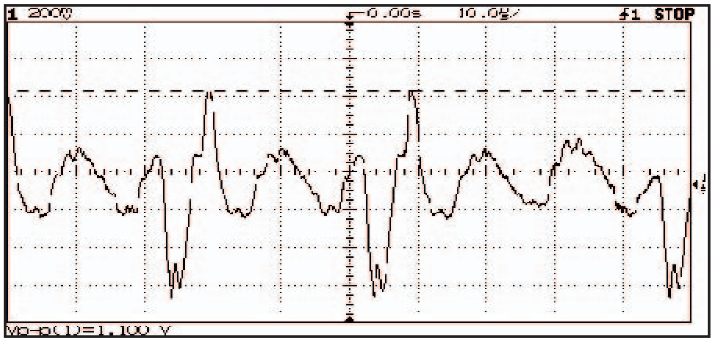
㊻ QH01 D (HV OUT)



㊼ IK41 P09 (CY V+)



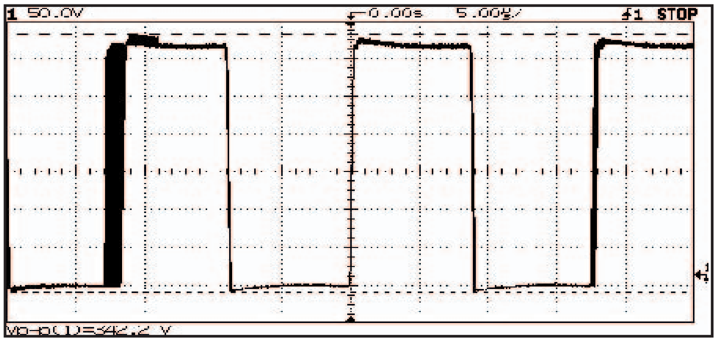
㊽ IK40 P18 (CY H+)



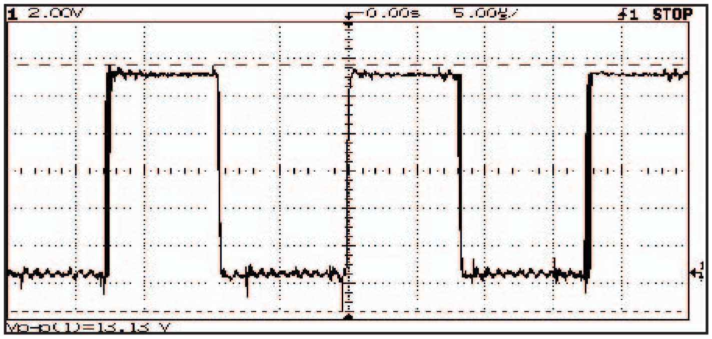
WAVEFORMS AT EACH SECTION

Numbers inside circle correspond to locations shown in the circuit diagram. Waveforms taken using a Color Bar signal with H. sync 31 khz and V. sync 60 hz and a X10 probe.

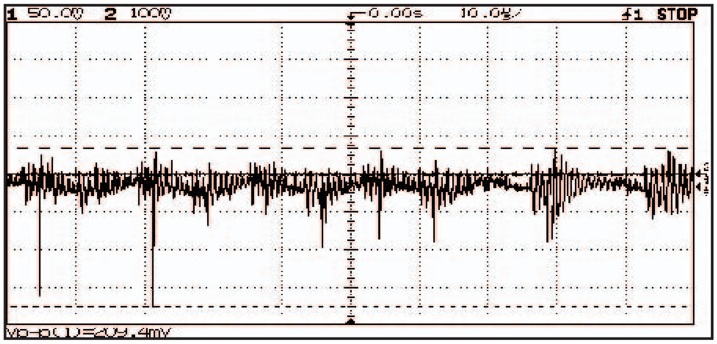
(49) IP01 P16 (VG)



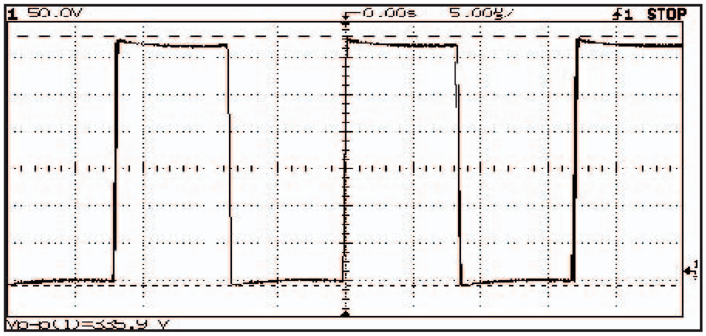
(50) IP01 P12 (VG L)



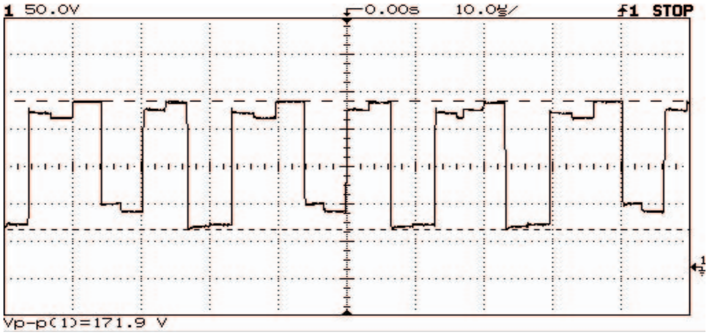
(51) IP01 P09 (OCP)



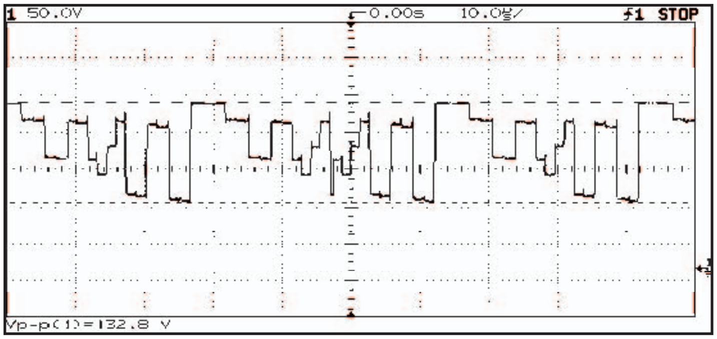
(52) QP01 S



(53) P802 R OUT



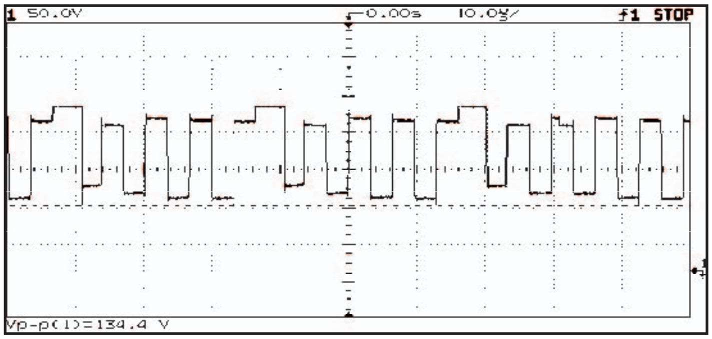
(54) P852 G OUT



WAVEFORMS AT EACH SECTION

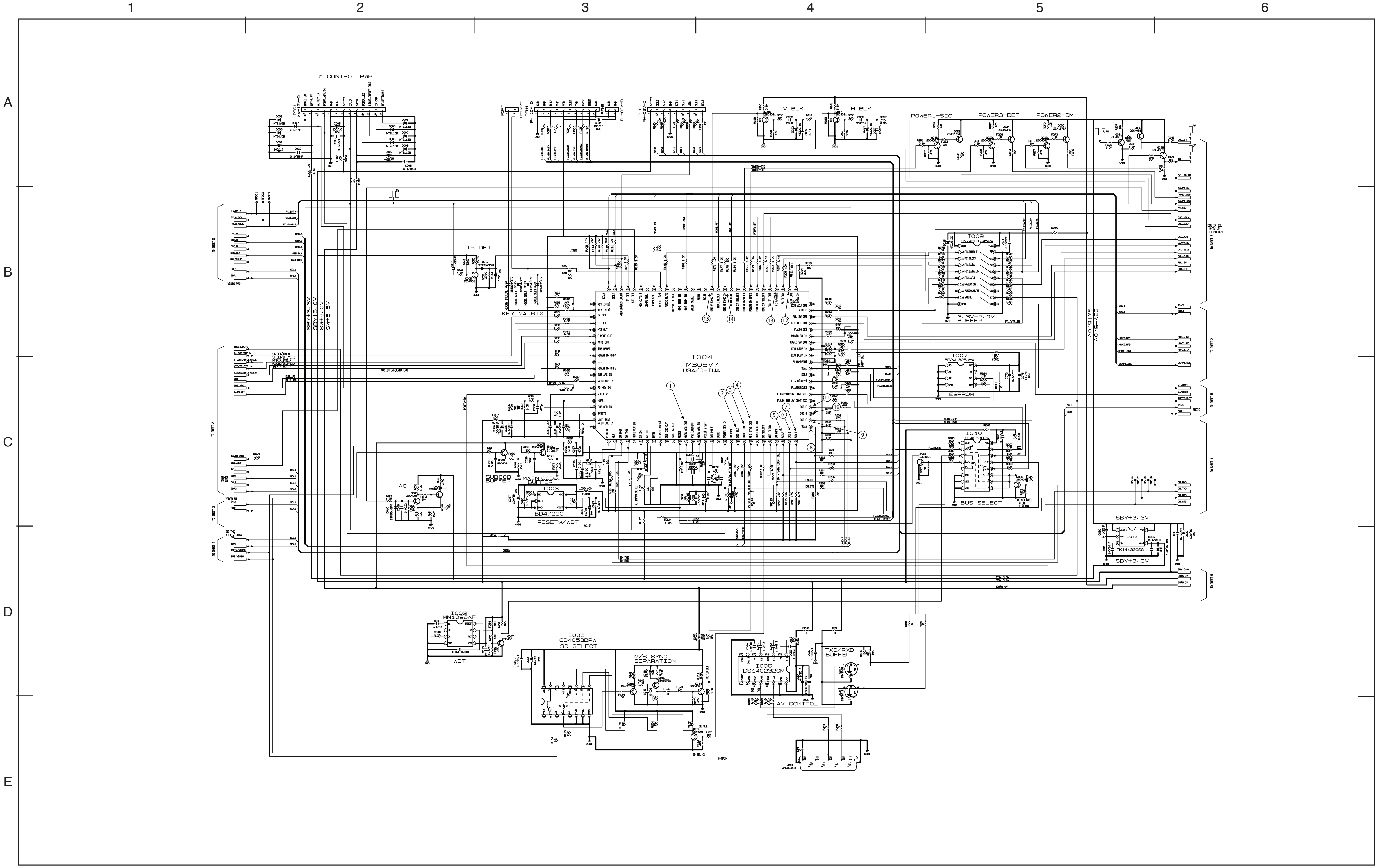
Numbers inside circle correspond to locations shown in the circuit diagram. Waveforms taken using a Color Bar signal with H. sync 31 khz and V. sync 60 hz and a X10 probe.

(55) P8A2 B OUT



PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

BASIC CIRCUIT DIAGRAM

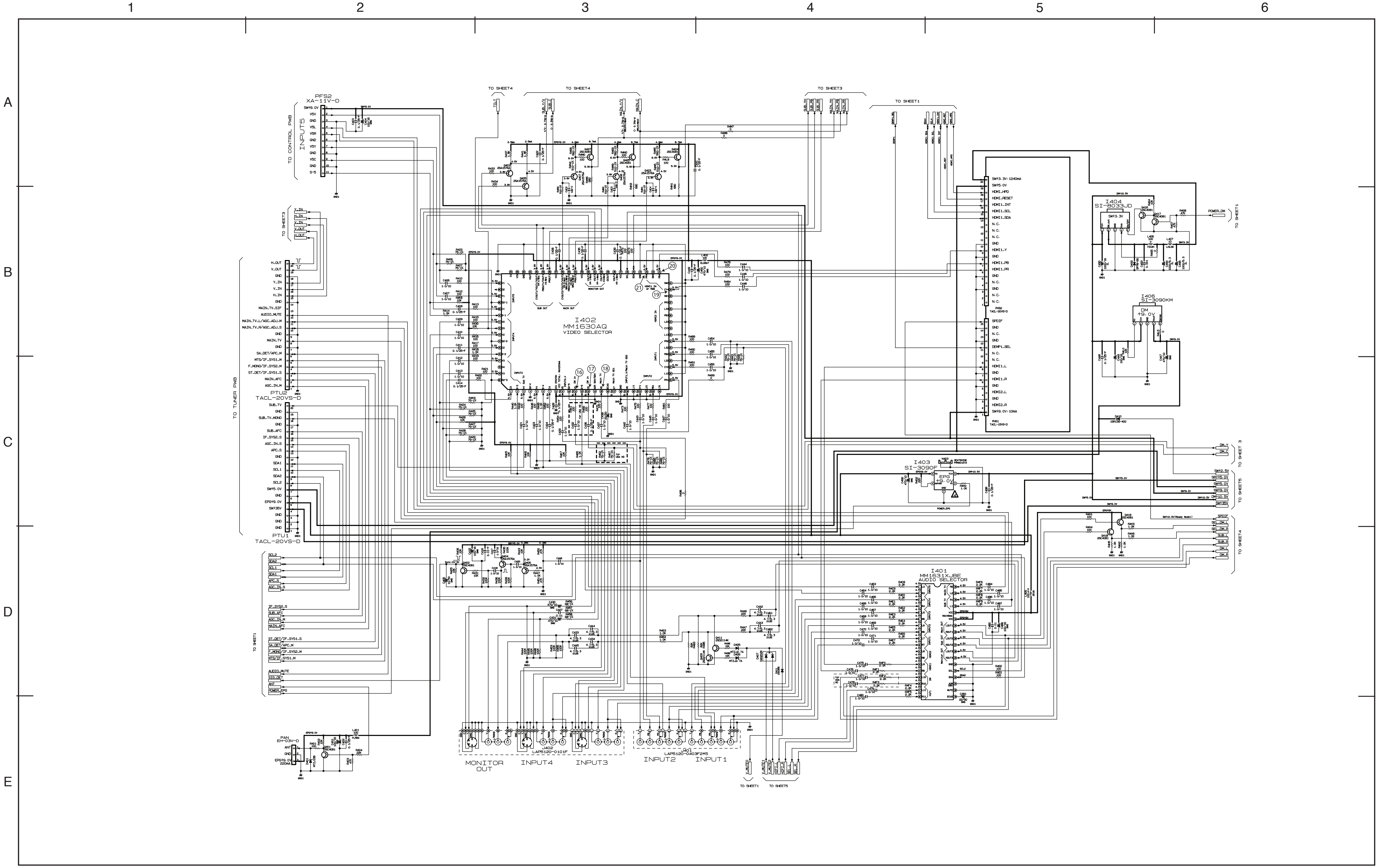

1
2
3
4
5
6
A
B
C
D
E
to CONTROL PWB
V BLK
H BLK
POWER1-SIG
POWER3-DEF
POWER2-DM
IR DET
KEY MATRIX
I004
M306V7
USA/CHINA
I009
3.3V→5.0V BUFFER
I007
E2PROM
I010
BUS SELECT
SBY+3.3V
I013
TK11133CSC
SBY+3.3V
SUBCCD BUFFER
MAIN CCD BUFFER
I003
BD4729G
RESETw/WDT
AC
I002
MM1096AF
WDT
I005
CD4053BPW
SD SELECT
M/S SYNC SEPARATION
I006
DS14C232CM
AV CONTROL
TXD/RXD BUFFER

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

TABLE OF CONTENTS

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

BASIC CIRCUIT DIAGRAM


1
2
3
4
5
6
A
B
C
D
E
PFS2
XA-11V-D
INPUT5
TO CONTROL PWB
TO SHEET3
TO SHEET4
TO SHEET1
TO SHEET5
TO TUNER PWB
PTU2
TACL-20VS-D
PTU1
TACL-20VS-D
I402
MM1630AQ
VIDEO SELECTOR
I404
SI-8033JD
I406
SI-3090KM
I403
SI-3090F
I401
MM1631XJBE
AUDIO SELECTOR
PHS
TACL-15V0-D
PAN
EH-03V-D
MONITOR
OUT
INPUT4
INPUT3
INPUT2
INPUT1
J402
LAP5120-0101F
J401
LAP5120-0403F245
POWER_ON
TO SHEET 3
TO SHEET5
TO SHEET4
16
17
18
19
20
21

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

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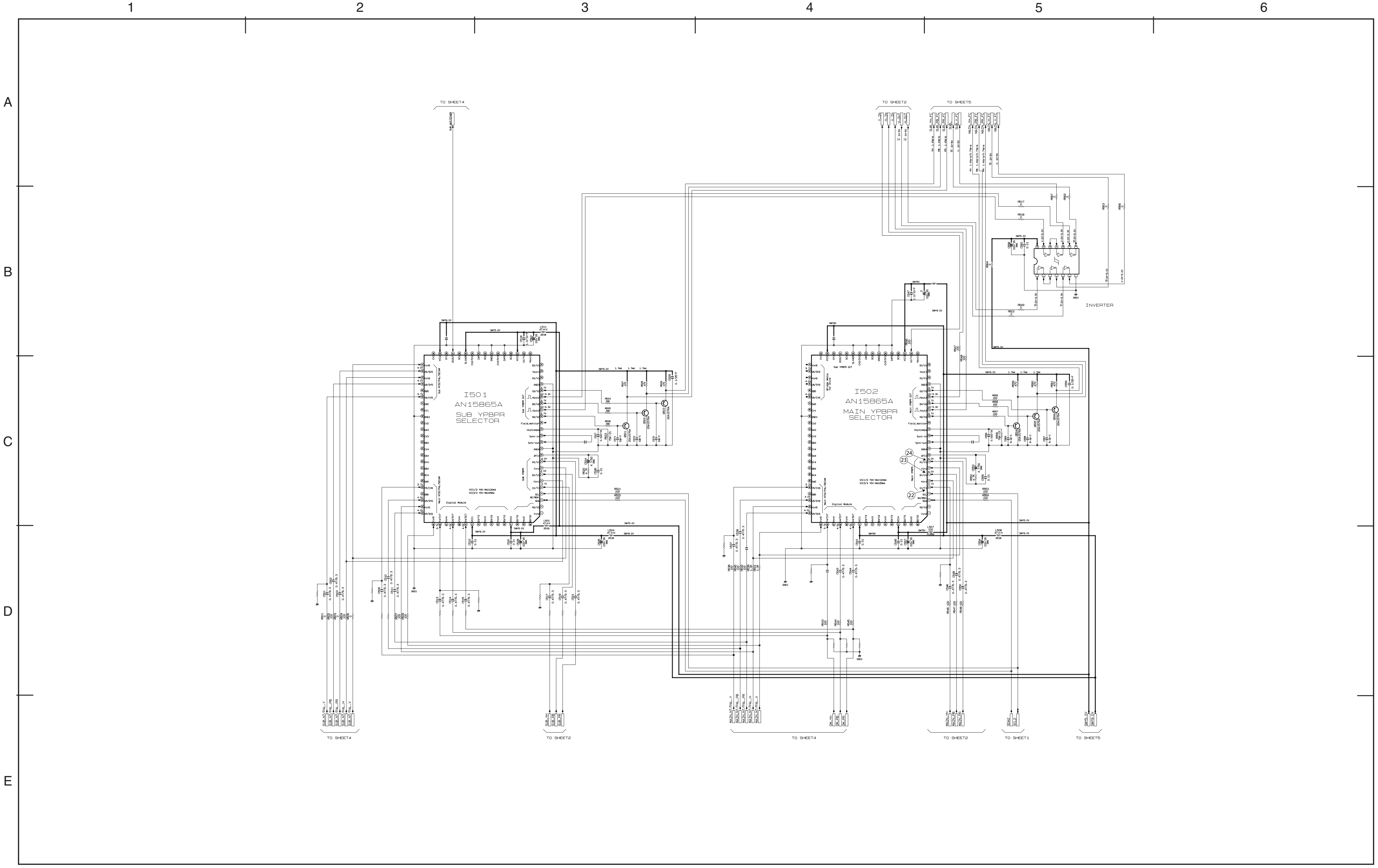
BASIC CIRCUIT DIAGRAM

DP47
Signal 3 of 5


1
2
3
4
5
6
A
B
C
D
E
TO SHEET4
TO SHEET2
TO SHEET5
INVERTER
I501
AN15865A
SUB YPBPR
SELECTOR
I502
AN15865A
MAIN YPBPR
SELECTOR
24
23
22
TO SHEET4
TO SHEET2
TO SHEET4
TO SHEET2
TO SHEET1
TO SHEET5

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

Signal 3 of 5

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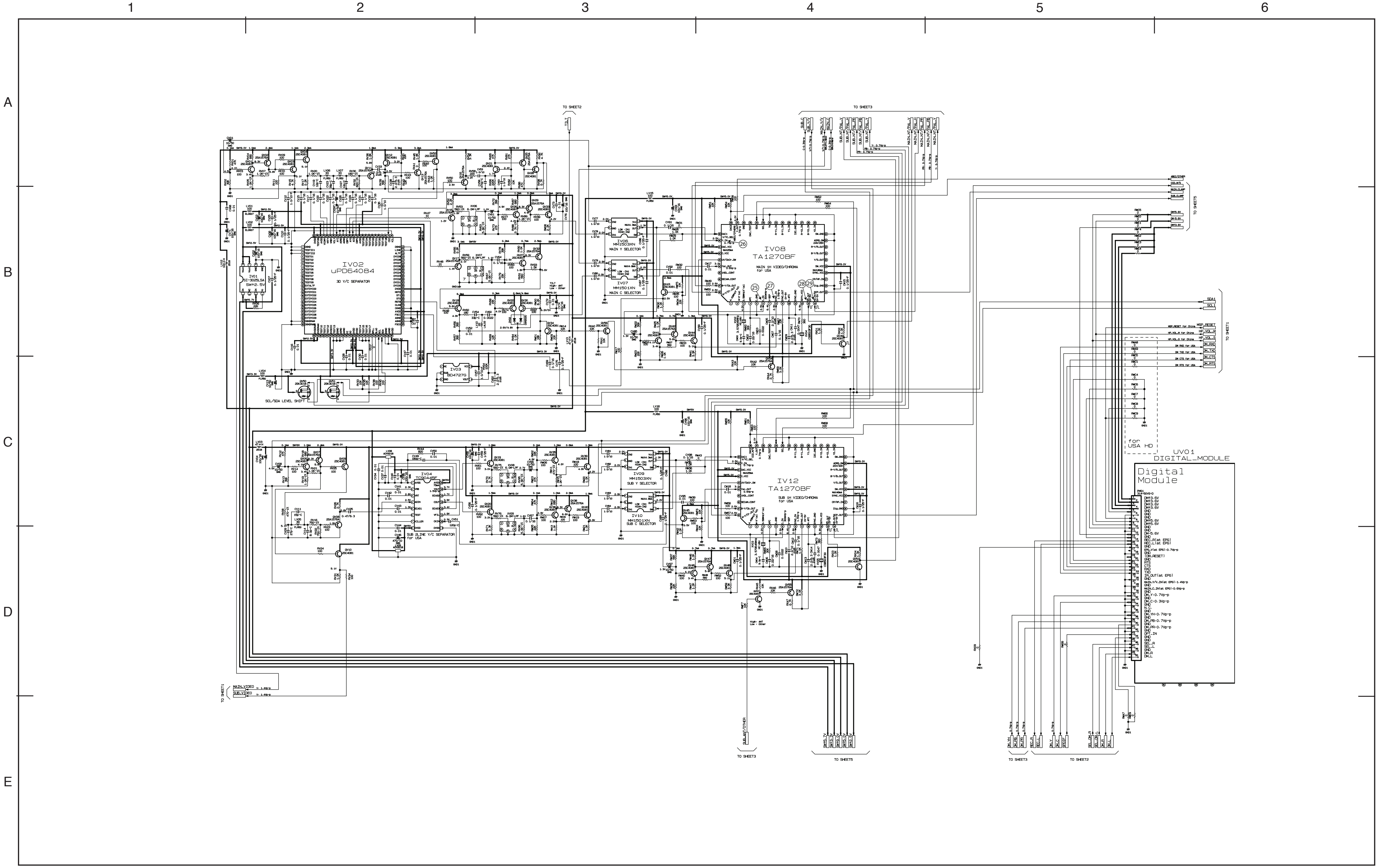
BASIC CIRCUIT DIAGRAM


1
2
3
4
5
6
A
B
C
D
E
TO SHEET2
TO SHEET3
TO SHEET5
TO SHEET1
IV02
uPD64084
3D Y/C SEPARATOR
IV01
IV03
BD4727G
SCL/SDA LEVEL SHIFT
IV06
MM1501XN
MAIN Y SELECTOR
IV07
MM1501XN
MAIN C SELECTOR
IV08
TA1270BF
MAIN 1H VIDEO/CHROMA
for USA
IV04
SUB DLINE Y/C SEPARATOR
for USA
IV09
MM1501XN
SUB Y SELECTOR
IV10
MM1501XN
SUB C SELECTOR
IV12
TA1270BF
SUB 1H VIDEO/CHROMA
for USA
for
USA HD
UV01
DIGITAL_MODULE
Digital
Module
SDA1
SCL1
MAIN_VIDEO
SUB_VIDEO

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

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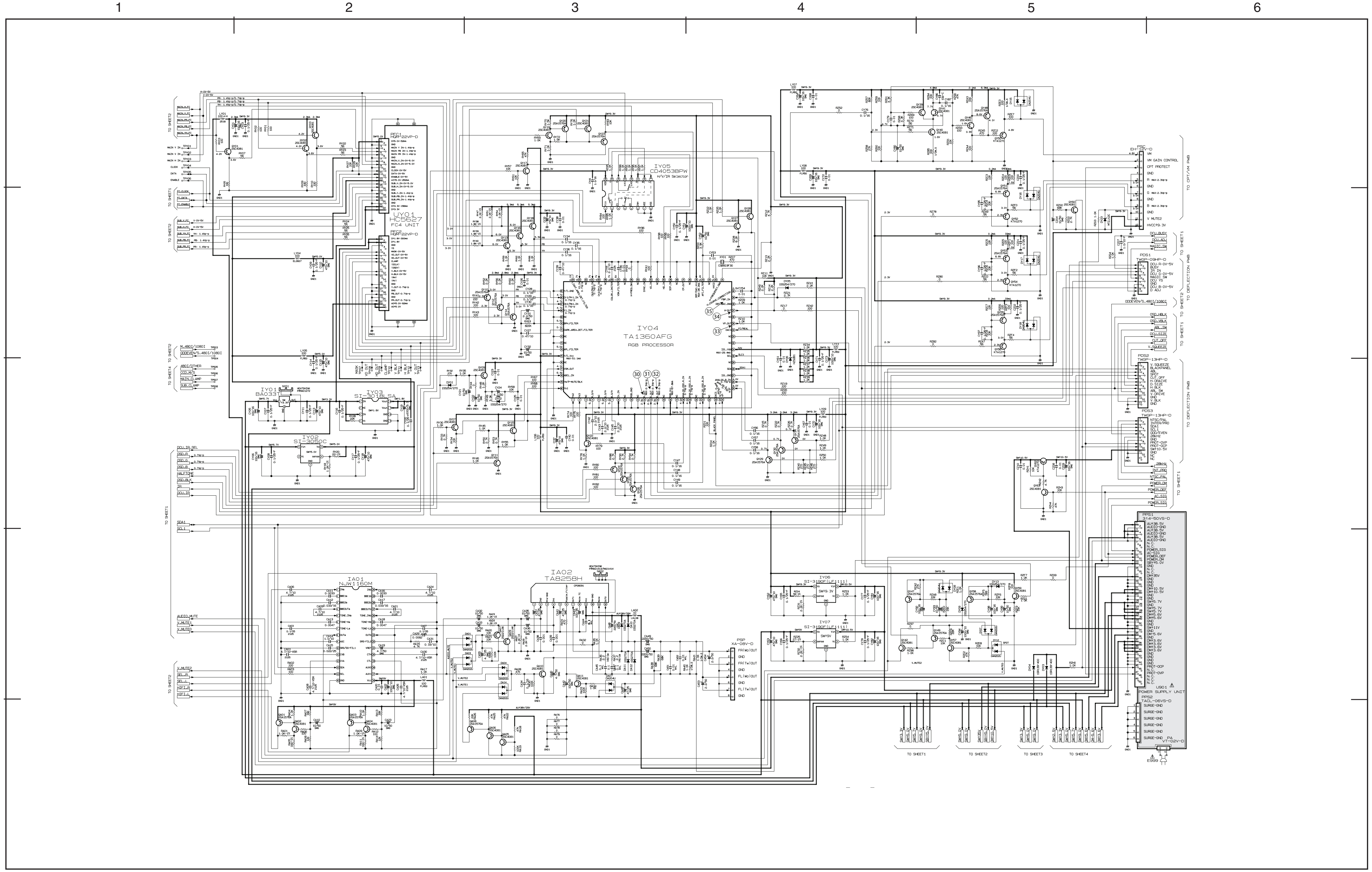
BASIC CIRCUIT DIAGRAM


1
2
3
4
5
6
A
B
C
D
E
IY01
HC5627
FC4 UNIT
IY05
CD4053BPW
H/V/IR Selector
IY04
TA1360AFG
RGB PROCESSOR
IA01
NJW1160M
IA02
TA8258H
IY02
SI-3050C
IY06
IY07
UG01
POWER SUPPLY UNIT
TO SHEET1
TO SHEET2
TO SHEET3
TO SHEET4

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

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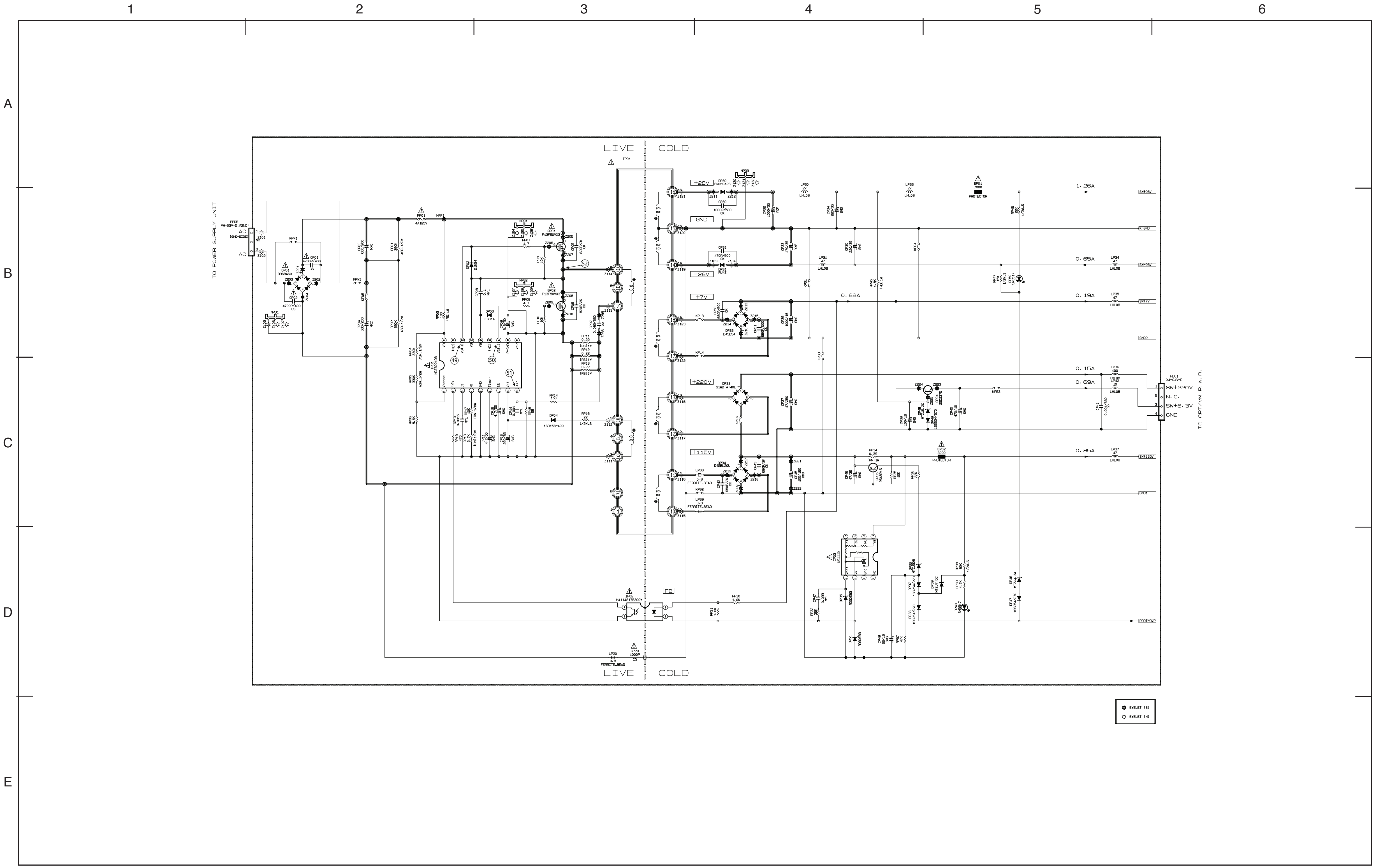
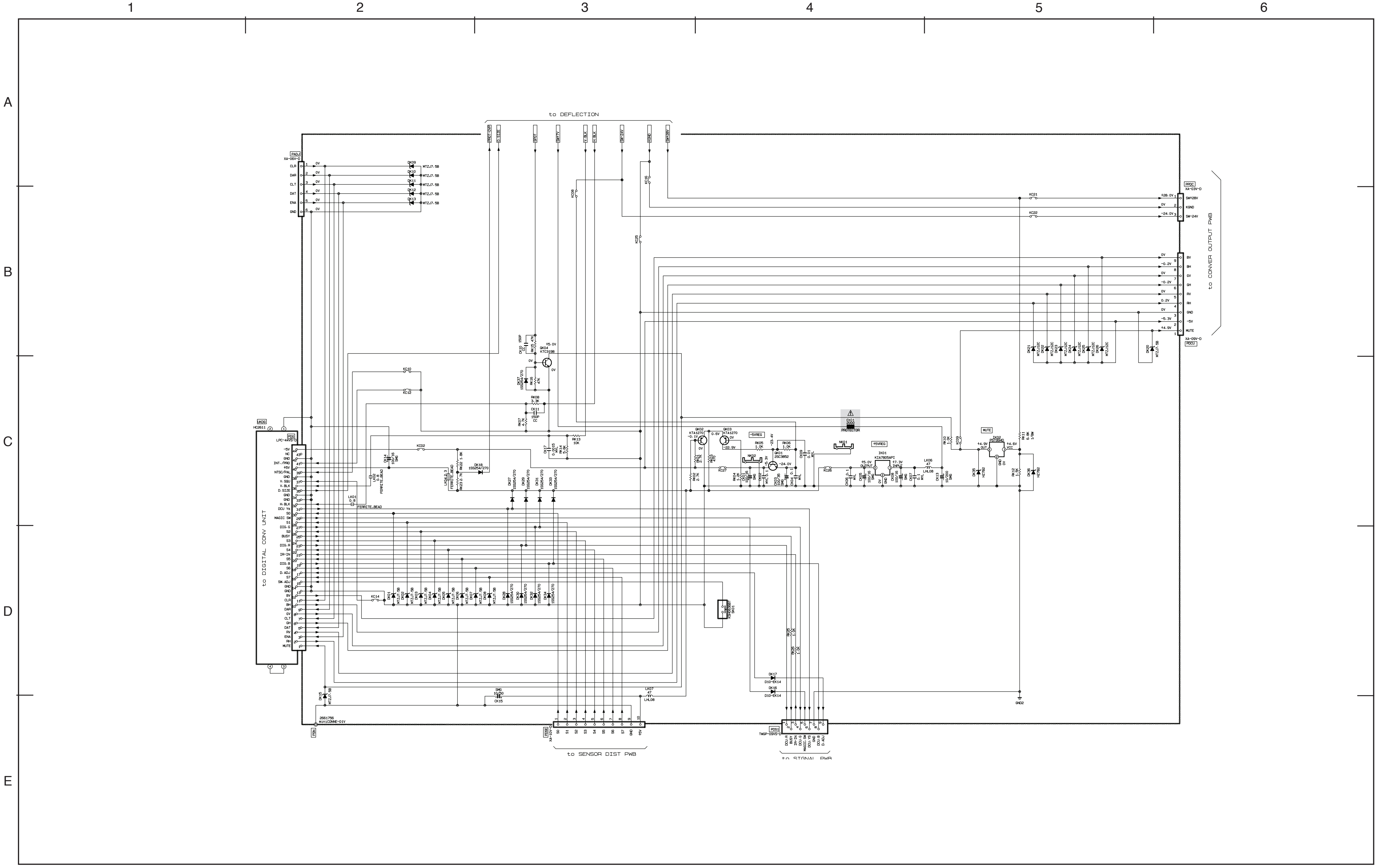
BASIC CIRCUIT DIAGRAM


1
2
3
4
5
6
A
B
C
D
E
LIVE
COLD
TO POWER SUPPLY UNIT
PPDE
VH-03V-D(#2NC)
AC
(GND-SIDE)
NC
AC
Z101
Z102
KPW1
DP01
D3SBA60
CP01
4700P/400
CS
CP02
4700P/400
CS
Z201
Z202
Z203
Z204
NPD1
Z105
Z106
Z107
KPW3
KPW5
CP03
680/200
MXC
CP04
680/200
MXC
RP01
390K
ASR_1/2W
RP02
390K
ASR_1/2W
FP01
4A125V
NPF1
RP03
100
(RS)1W
RP04
330K
ASR_1/2W
RP05
330K
ASR_1/2W
RP06
5.6K
IP01
MCZ3001DB
VD
(NC)
VG(H)
VS
VB
(NC)
VG(L)
P-GND
Vc2
Vsense
F/B
Ct
Rt
GND
Timer
SS
Vc1
OCP
49
50
51
52
DP02
D1NS4
CP08
0.1
MYL
DP03
EG01A
CP09
3.3/50
SMG
NPQ1
Z124
Z125
Z126
QP01
F13F50VX3
Z205
Z206
Z207
RP07
4.7
RP08
10K
CP05
820P/2K
CK
NPQ2
Z127
Z128
Z129
QP02
F13F50VX3
Z208
Z209
Z210
RP09
4.7
RP10
10K
CP06
820P/2K
CK
CP07
0.082/630
PP
Z285
Z286
RP11
0.22
(RS)1W
RP12
0.22
(RS)1W
RP13
0.22
(RS)1W
RP14
150
CP10
0.0015
MYL
RP17
10K
(RN)1/8W
RP18
2.7K
(RN)1/8W
RP19
470
CP11
4.7/50
SMG
CP12
4.7/50
SMG
CP13
220/35
SMG
CP14
0.001
MYL
RP15
68
DP04
1SR153-400
RP16
22
1/2W_S
TP01
Z111
Z112
Z113
Z114
Z115
Z116
Z117
Z118
Z119
Z120
Z121
Z122
Z123
+28V
DP30
FMN-G12S
Z211
Z212
CP30
1000P/500
CK
NPD3
Z130
Z131
Z132
CP32
1000/35
YXF
GND
CP33
470/35
YXF
CP31
470P/500
CK
Z103
Z104
DP31
RU4Z
-28V
+7V
KPL3
CP50
680P/500
CK
Z213
Z214
Z215
Z216
DP32
D4SBS4
CP51
680P/500
CK
CP36
1000/16
SMG
KPL4
+220V
DP33
S1WB(A)40L
KPL6
CP37
47/250
SMG
+115V
DP34
D4SBL20U
LP38
0.8
FERRITE_BEAD
Z219
Z217
Z218
Z220
CP42
680P/2K
CK
CP43
680P/2K
CK
Z221
Z222
CP45
100/160
KMX
KPG2
LP39
0.8
FERRITE_BEAD
LP30
27
LHL08
CP34
220/35
SMG
CP35
220/35
SMG
LP31
47
LHL08
LP33
27
LHL08
KPG1
KPG3
KPG4
RP45
1.8K
(RS)1W
0.88A
EP01
7000
PROTECTOR
RP46
22K
1/2W_S
RP47
15K
1/2W_S
DP50
SM3517
1.26A
SW+28V
K-GND
0.65A
LP34
47
LHL08
SW-28V
0.19A
LP35
47
LHL08
SW+7V
GND2
0.15A
LP36
100
LHL08
0.69A
LP42
10
LHL08
Z224
Z223
Z225
QP04
2SD2375
DP48
MTZJ6.2C
DP49
1SS254/270
CP39
100/16
SMG
CP40
470/10
SMG
KPE3
CP41
0.001/630
PP
PDC1
XA-04V-D
SW+220V
N. C.
SW+6. 3V
GND
TO CPT/VM P. W. B.
RP34
0.39
(RN)1W
CP46
47/35
SMG
QP05
2SA821S
RP35
10K
RP36
22K
EP02
3000
PROTECTOR
0.85A
LP37
47
LHL08
SW+115V
GND1
IP03
EK1115
Z1
Z2
NC
Vs
Vref
Vk
Gnd
NC
CP47
0.033
MYL
DP35
RD30EB3
DP51
RD30EB3
RP32
39K
CP49
22/16
SMG
RP37
47K
DP36
MTZJ30B
DP37
1SS254/270
DP38
1SS254/270
DP39
MTZJ7.5C
RP38
82K
1/2W_S
RP39
4.7K
DP40
SM3517
DP46
MTZJ4.3A
DP47
1SS254/270
PROT-OVP
IP02
HA11A817B300W
FB
RP30
1.0K
RP31
1.0K
LP20
0.8
FERRITE_BEAD
CP20
1000P
CD
EYELET (S)
EYELET (M)

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

BASIC CIRCUIT DIAGRAM


1
2
3
4
5
6
A
B
C
D
E
to DEFLECTION
to CONVER OUTPUT PWB
to DIGITAL CONV UNIT
to SENSOR DIST PWB
to SIGNAL PWB
MUTE
+5VREG
FERRITE BEAD

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

Power Deflection 2 of 3

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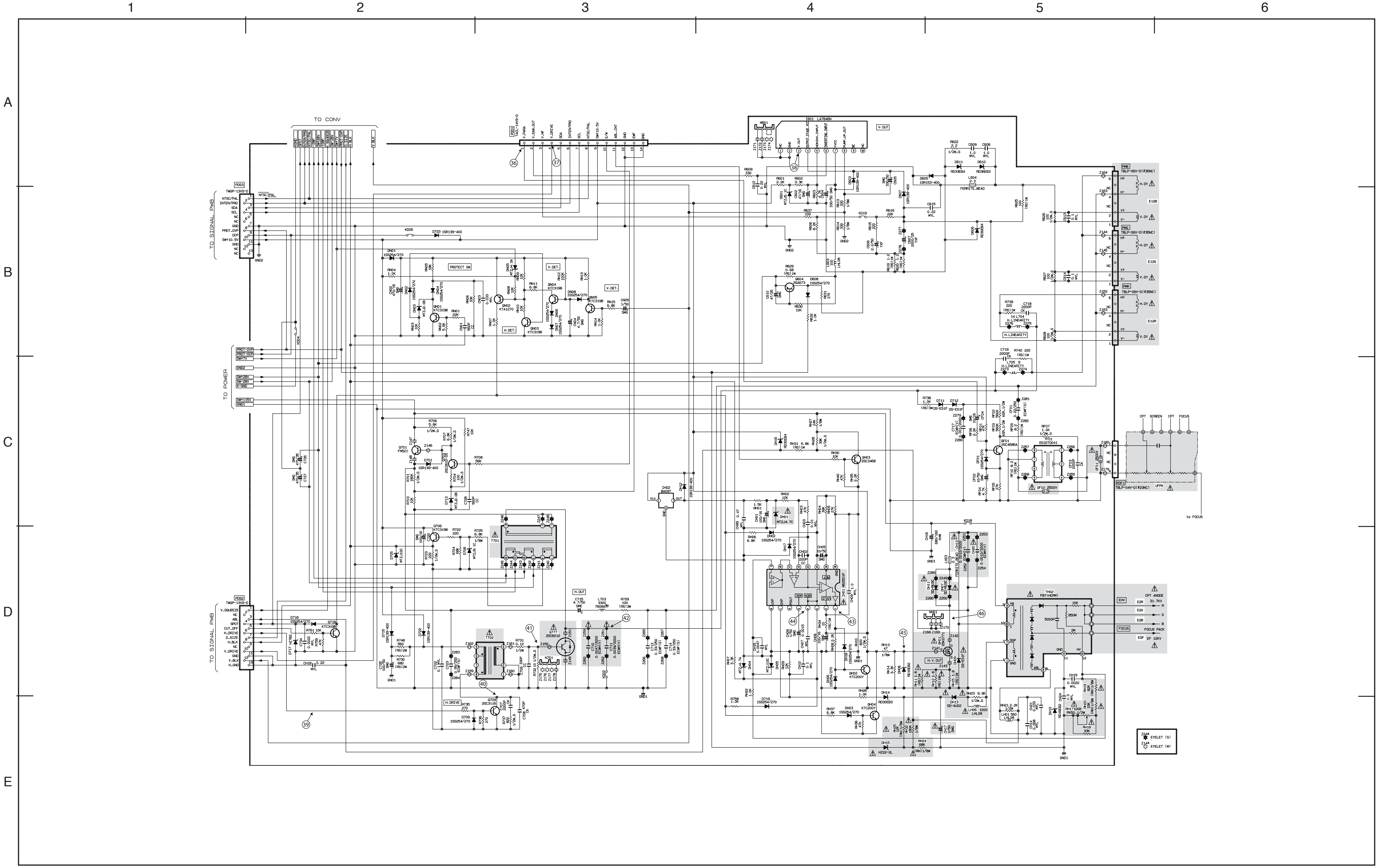
BASIC CIRCUIT DIAGRAM


1
2
3
4
5
6
A
B
C
D
E
TO CONV
TO SIGNAL PWB
TO POWER
TO SIGNAL PWB
PROTECT SW
V.DET.
H.DET.
V.OUT
H.OUT
H.DRIVE
H.LINEARITY
FERRITE BEAD
FBT(HDM4)
CPT ANODE 31.7KV
FOCUS PACK
SCREEN
FOCUS
to FOCUS
H.DY
V.DY
EYELET (S)
EYELET (W)
36
37
38
39
40
41
42
43
44
45
46

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

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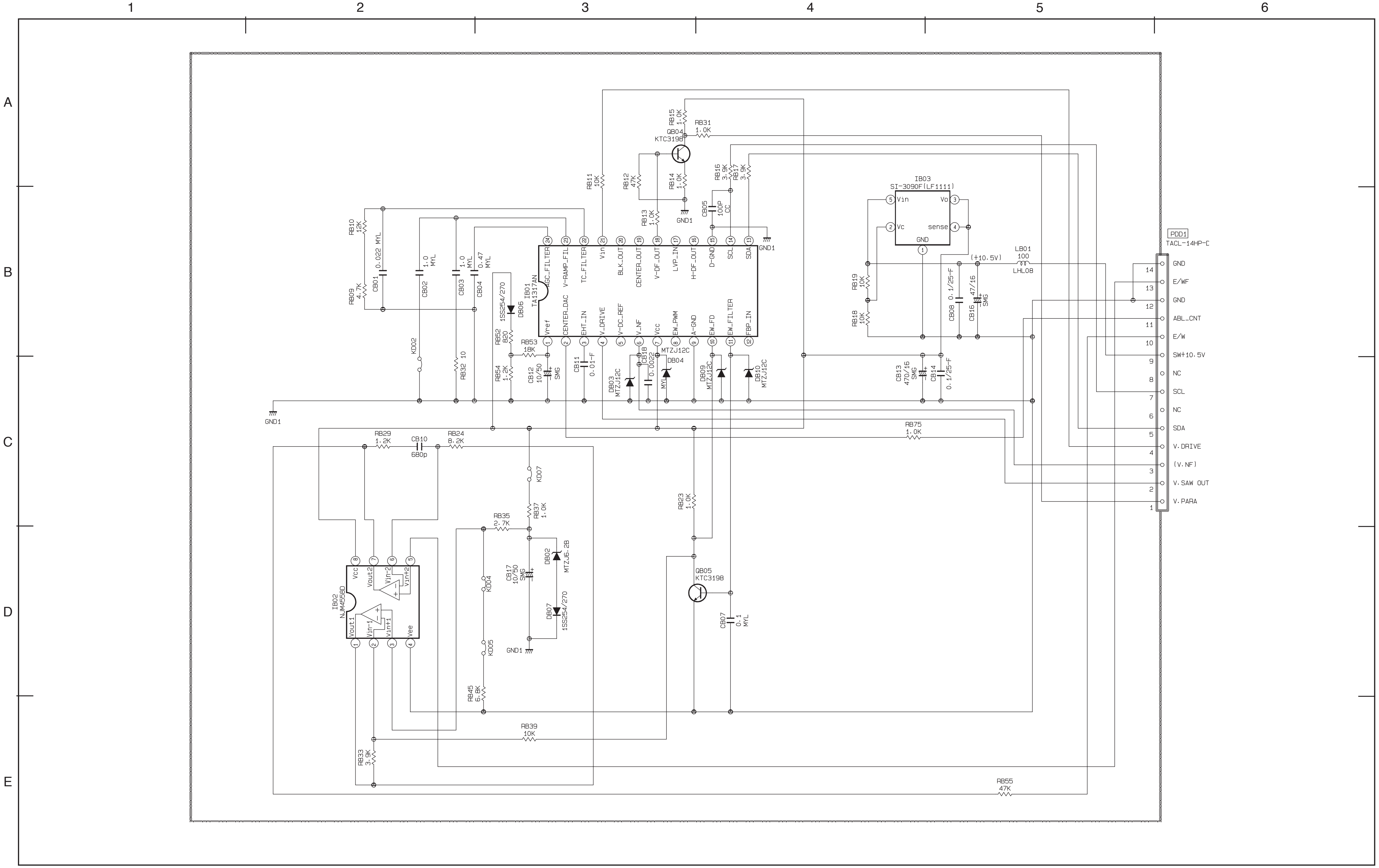
BASIC CIRCUIT DIAGRAM


1
2
3
4
5
6
A
B
C
D
E
RB15 1.0K
RB31 1.0K
QB04 KTC3198
RB11 10K
RB12 47K
RB14 1.0K
RB16 3.9K
RB17 3.9K
RB13 1.0K
GND1
CB05 100P CC
RB10 12K
RB09 4.7K
CB01 0.022 MYL
CB02 1.0 MYL
CB03 1.0 MYL
CB04 0.47 MYL
IB01 TA1317AN
AGC_FILTER
V-RAMP_FIL
TC_FILTER
Vin
BLK_OUT
CENTER_OUT
V-DF_OUT
LVP_IN
H-DF_OUT
D-GND
SCL
SDA
Vref
CENTER_DAC
EHT_IN
V_DRIVE
V-DC_REF
V_NF
Vcc
EW_PWM
A-GND
EW_FD
EW_FILTER
FBP_IN
DB06 1SS254/270
RB52 820
RB53 18K
RB54 1.2K
CB12 10/50 SMG
CB11 0.01-F
CB18 0.0022 MYL
DB03 MTZJ12C
DB04 MTZJ12C
DB09 MTZJ12C
DB10 MTZJ12C
KD02
RB32 10
GND1
IB03 SI-3090F(LF1111)
Vin
Vo
Vc
sense
GND
RB19 10K
RB18 10K
CB08 0.1/25-F
CB16 47/16 SMG
(+10.5V)
LB01 100 LHL08
CB13 470/16 SMG
CB14 0.1/25-F
RB75 1.0K
PDD1
TACL-14HP-C
GND
E/WF
GND
ABL_CNT
E/W
SW+10.5V
NC
SCL
NC
SDA
V.DRIVE
(V.NF)
V.SAW OUT
V.PARA
RB29 1.2K
CB10 680p
RB24 8.2K
KD07
RB37 1.0K
RB35 2.7K
DB02 MTZJ6.2B
CB17 10/50 SMG
DB07 1SS254/270
KD04
KD05
GND1
RB45 6.8K
IB02 NJM4558D
Vcc
Vout2
Vin-2
Vin+2
Vout1
Vin-1
Vin+1
Vee
RB23 1.0K
QB05 KTC3198
CB07 0.1 MYL
RB39 10K
RB33 3.9K
RB55 47K

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

Sub-Deflection

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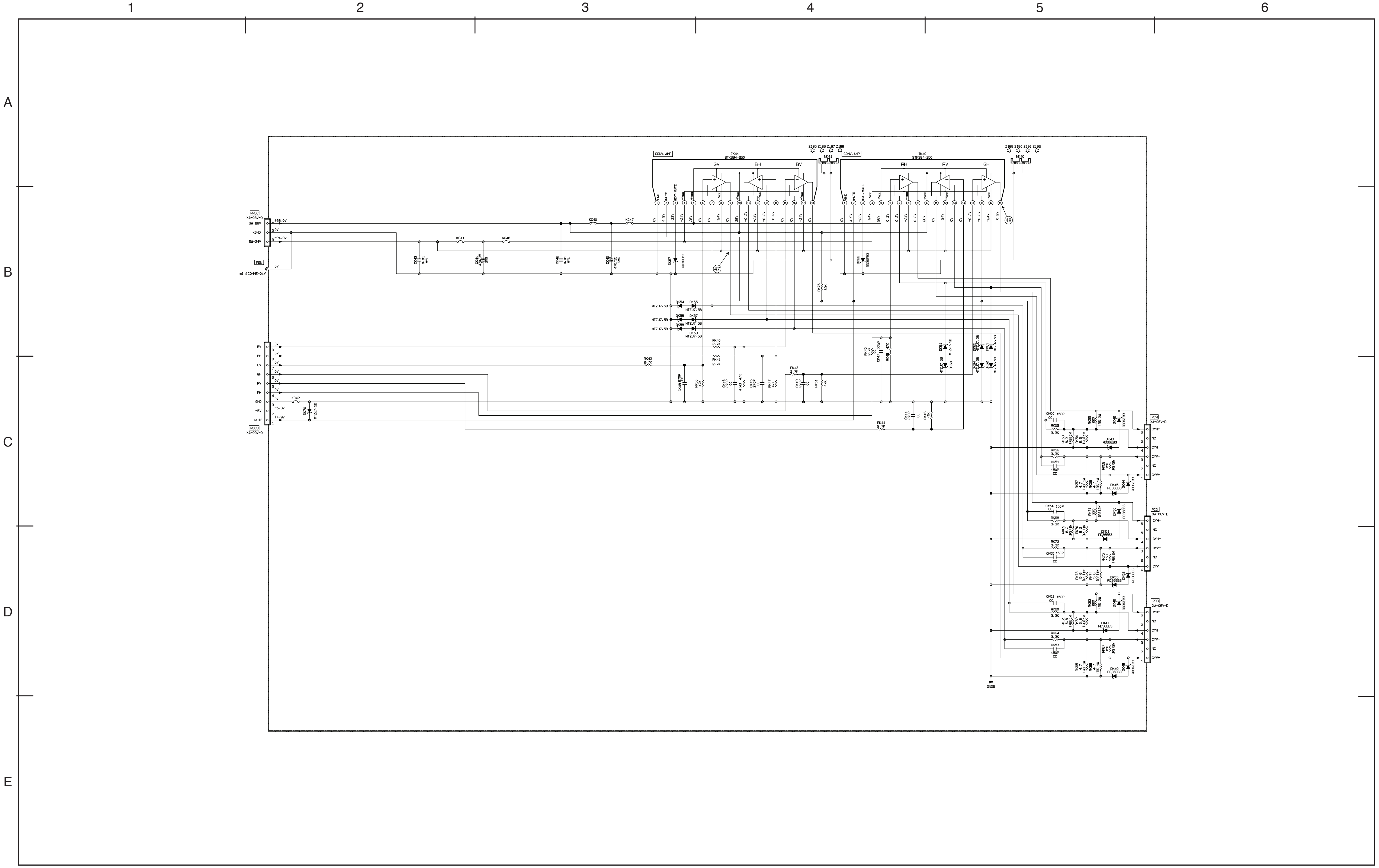
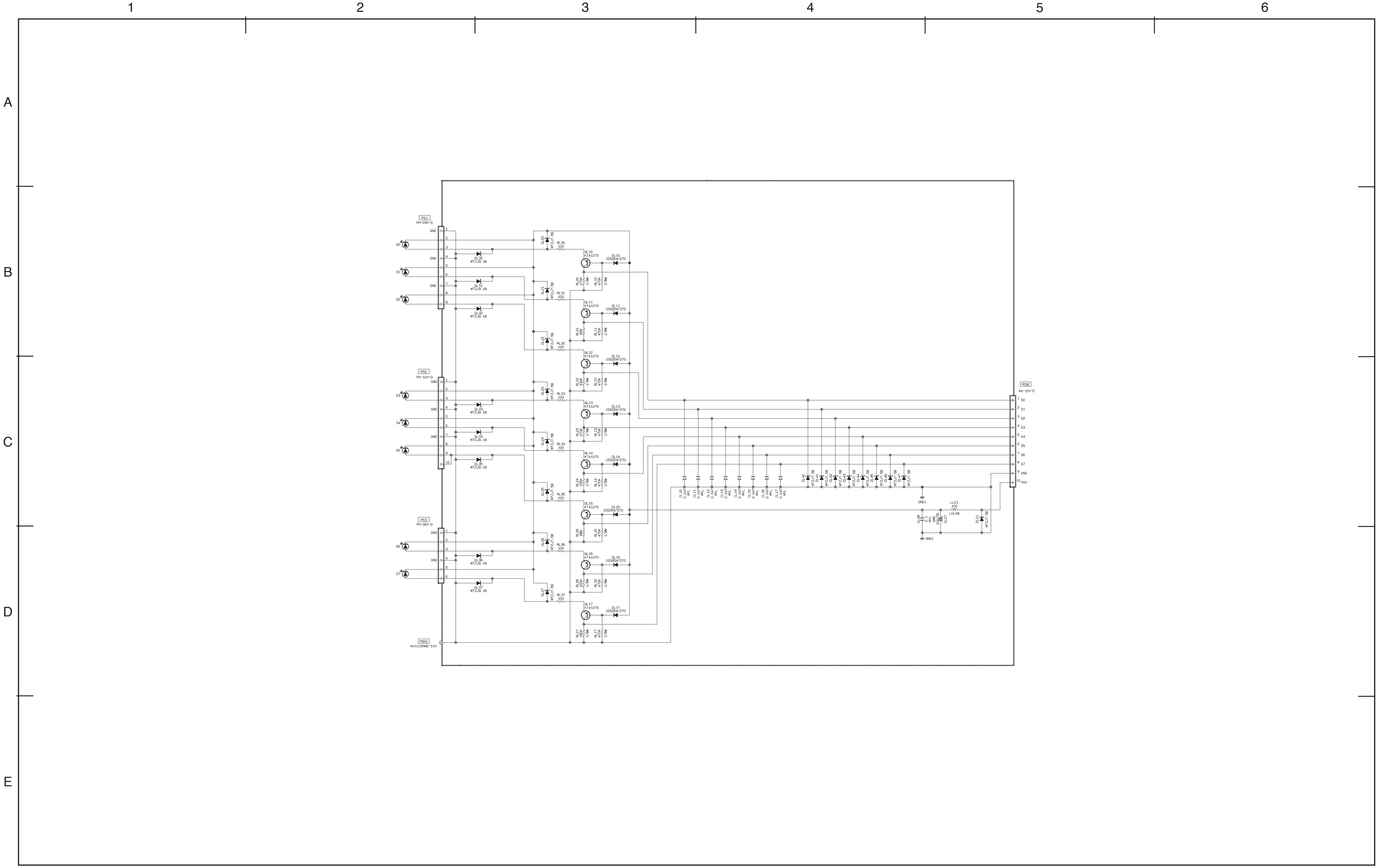
BASIC CIRCUIT DIAGRAM


1
2
3
4
5
6
A
B
C
D
E
CONV-AMP
IK41
STK394-250
IK40
STK394-250
GV
BH
BV
RH
RV
GH
KC40
KC47
KC41
KC48
KC42
GND5

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

BASIC CIRCUIT DIAGRAM


1
2
3
4
5
6
A
B
C
D
E
PS1
PH-09V-D
PS2
PH-10V-D
PS3
PH-06V-D
PSN1
miniCONNE-01V
GND
S0
S1
S2
S3
S4
S5
S6
S7
DL30 MTZJ9.1B
DL31 MTZJ9.1B
DL32 MTZJ9.1B
DL33 MTZJ9.1B
DL34 MTZJ9.1B
DL35 MTZJ9.1B
DL36 MTZJ9.1B
DL37 MTZJ9.1B
DL20 MTZJ7.5B
DL21 MTZJ7.5B
DL22 MTZJ7.5B
DL23 MTZJ7.5B
DL24 MTZJ7.5B
DL25 MTZJ7.5B
DL26 MTZJ7.5B
DL27 MTZJ7.5B
RL30 100
RL31 100
RL32 100
RL33 100
RL34 100
RL35 100
RL36 100
RL37 100
QL10 KTA1270
QL11 KTA1270
QL12 KTA1270
QL13 KTA1270
QL14 KTA1270
QL15 KTA1270
QL16 KTA1270
QL17 KTA1270
DL10 1SS254/270
DL11 1SS254/270
DL12 1SS254/270
DL13 1SS254/270
DL14 1SS254/270
DL15 1SS254/270
DL16 1SS254/270
DL17 1SS254/270
RL20 270K 1/8W
RL21 82K
RL22 330K 1/8W
RL23 270K 1/8W
RL24 330K 1/8W
RL25 68K
RL26 220K 1/8W
RL27 180K 1/8W
RL10 470K 1/8W
RL11 470K 1/8W
RL12 470K 1/8W
RL13 470K 1/8W
RL14 470K 1/8W
RL15 470K 1/8W
RL16 470K 1/8W
RL17 470K 1/8W
CL10 0.047 MYL
CL11 0.047 MYL
CL12 0.047 MYL
CL13 0.047 MYL
CL14 0.047 MYL
CL15 0.047 MYL
CL16 0.047 MYL
CL17 0.047 MYL
DL40 MTZJ7.5B
DL41 MTZJ7.5B
DL42 MTZJ7.5B
DL43 MTZJ7.5B
DL44 MTZJ7.5B
DL45 MTZJ7.5B
DL46 MTZJ7.5B
DL47 MTZJ7.5B
GND1
CL08 0.1 MYL
CL07 100/35 SMG
LL01 100 LHL08
DL01 MTZJ7.5B
PDSE
XA-10V-D
+5V

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

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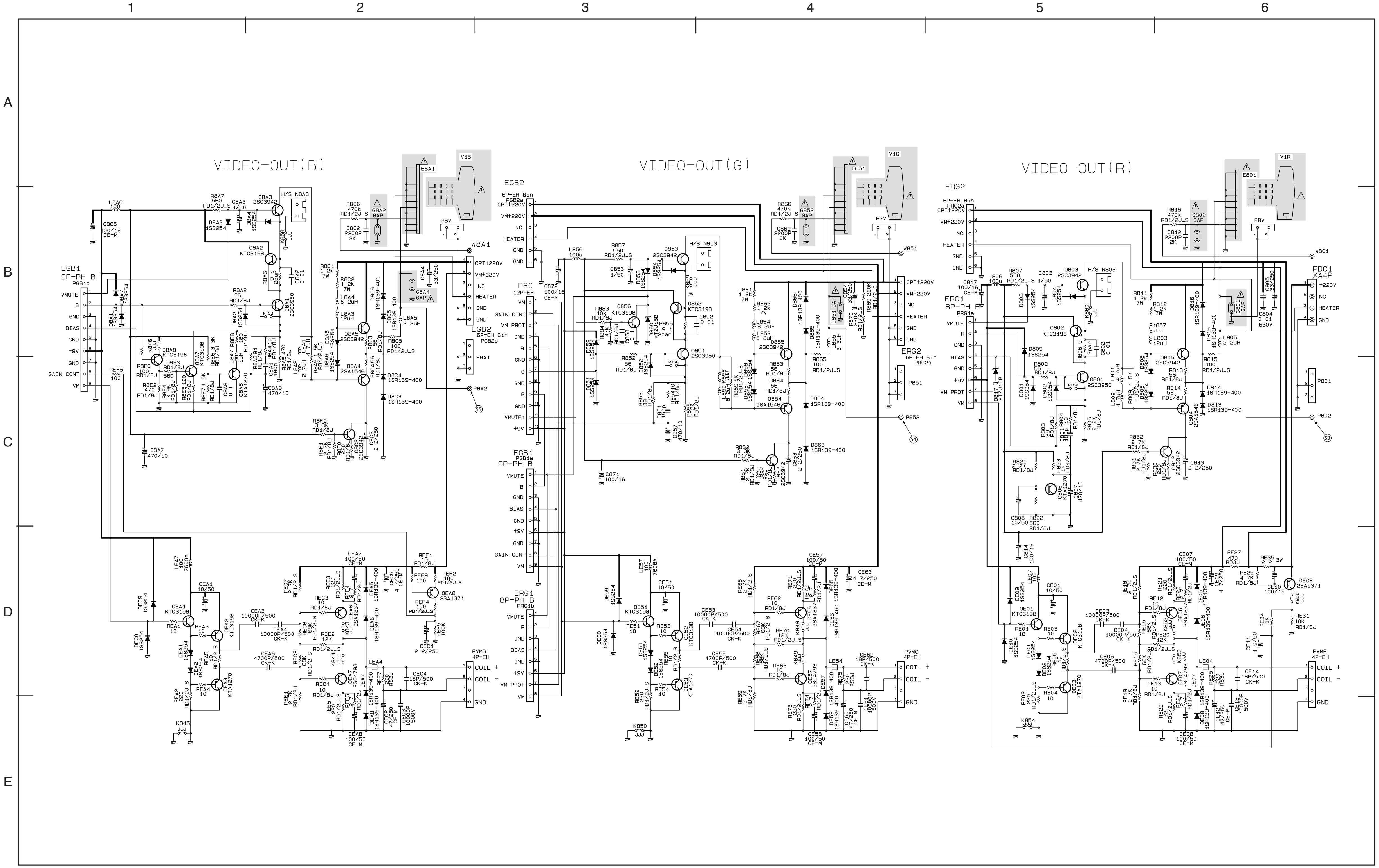
BASIC CIRCUIT DIAGRAM


1
2
3
4
5
6
A
B
C
D
E
VIDEO-OUT(B)
VIDEO-OUT(G)
VIDEO-OUT(R)
EGB1
9P-PH B
PGB1b
VMUTE
B
GND
BIAS
GND
+9V
GND
GAIN CONT
VM
EGB2
6P-EH B1n
PGB2a
CPT+220V
VM+220V
NC
HEATER
GND
GND
PSC
12P-EH
GAIN CONT
VM PROT
R
G
B
VMUTE1
+9V
EGB1
9P-PH B
PGB1a
ERG1
8P-PH B
PRG1b
ERG2
6P-EH B1n
PRG2a
EGB2
6P-EH B1n
PGB2b
ERG2
6P-EH B1n
PRG2b
ERG1
8P-PH B
PRG1a
PDC1
XA4P
+220V
NC
HEATER
GND
PVMB
4P-EH
PVMG
4P-EH
PVMR
4P-EH
COIL +
COIL −
GND
WBA1
W851
W801
PBA1
PBA2
P851
P852
P801
P802
V1B
V1G
V1R
EBA1
E851
E801
PBV
PGV
PRV
H/S NBA3
H/S N853
H/S N803
55
54
53

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

CPT

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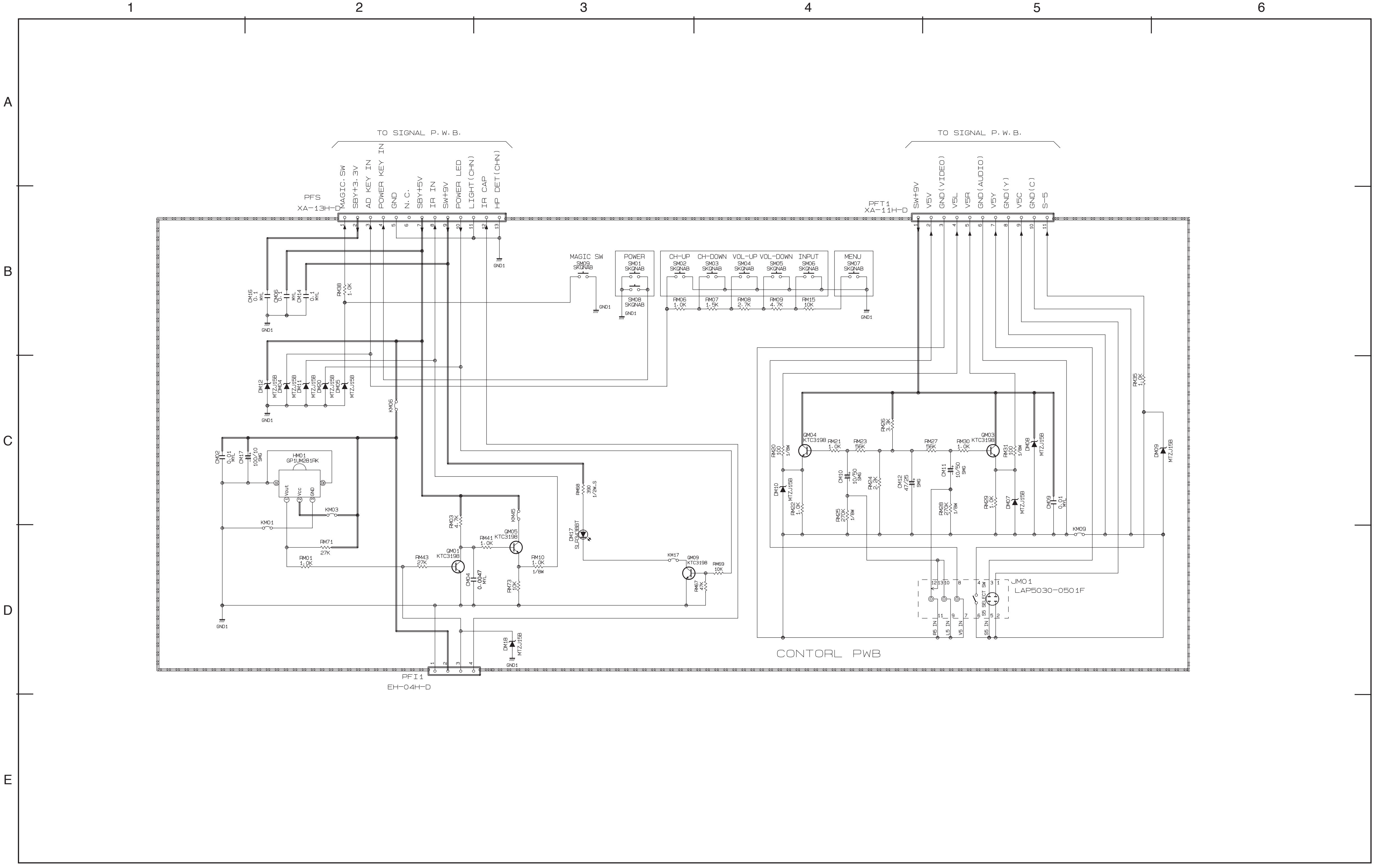
BASIC CIRCUIT DIAGRAM


1
2
3
4
5
6
A
B
C
D
E
TO SIGNAL P.W.B.
PFS
XA-13H-D
MAGIC SW
SBY+3.3V
AD KEY IN
POWER KEY IN
GND
N.C.
SBY+5V
IR IN
SW+9V
POWER LED
LIGHT(CHN)
IR CAP
HP DET(CHN)
TO SIGNAL P.W.B.
PFT1
XA-11H-D
SW+9V
V5V
GND(VIDEO)
V5L
V5R
GND(AUDIO)
V5Y
GND(Y)
V5C
GND(C)
S-5
MAGIC SW
SM09
SKQNAB
POWER
SM01
SKQNAB
SM08
SKQNAB
CH-UP
SM02
CH-DOWN
SM03
VOL-UP
SM04
VOL-DOWN
SM05
INPUT
SM06
MENU
SM07
RM06 1.0K
RM07 1.5K
RM08 2.7K
RM09 4.7K
RM15 10K
RM38 1.0K
HM01
GP1UM281RK
Vout
Vcc
GND
KM01
KM03
KM05
KM06
KM09
KM17
RM71 27K
RM01 1.0K
RM43 27K
QM01 KTC3198
RM41 1.0K
QM05 KTC3198
RM10 1.0K 1/8W
RM73 10K
RM03 4.7K
CM04 0.0047
QM09 KTC3198
RM69 10K
RM67 47K
DM17 SLR-342BT
RM68 390 1/2W,S
DM18 MTZJ15B
DM12 MTZJ15B
QM04 KTC3198
QM03 KTC3198
RM21 1.0K
RM23 56K
RM26 3.3K
RM27 56K
RM30 1.0K
RM35 1.0K
CM10 10/50
CM11 10/50
CM12 47/25
CM09 0.01
DM07 MTZJ15B
DM08 MTZJ15B
DM09 MTZJ15B
DM10 MTZJ15B
JM01
LAP5030-0501F
R5 IN
L5 IN
V5 IN
S5 IN
S5 SELECT SW
CONTORL PWB
PFI1
EH-04H-D
GND1

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

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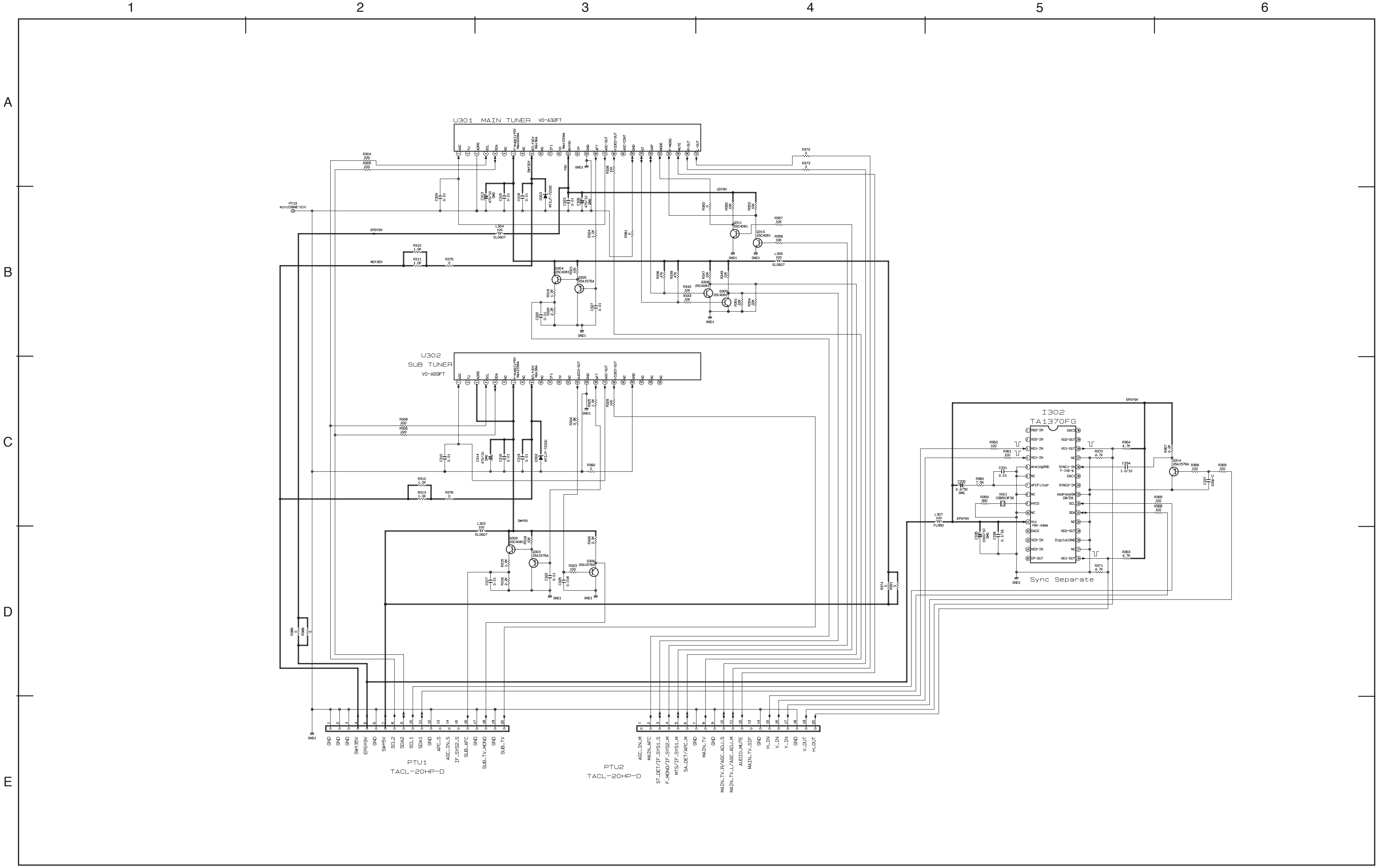
BASIC CIRCUIT DIAGRAM


1
2
3
4
5
6
A
B
C
D
E
U301 MAIN TUNER VO-A32FT
U302 SUB TUNER VO-A69FT
I302
TA1370FG
Sync Separate
HD2-IN
VD2-IN
HD1-IN
VD1-IN
AnalogGND
NC
AFCFilter
HVCO
Vcc +9V:44mA
DAC2
VD3-IN
HD3-IN
CP-OUT
DAC3
VD2-OUT
VD1-OUT
SYNC1-IN Y:1Vp-p
DAC1
SYNC2-IN
AddressSW D8/D9
SCL
SDA
HD2-OUT
DigitalGND
HD1-OUT
EPG+9V
GND1
R362 100
R361 100
C331 0.01
C330 2.2/50 SMG
R360 7.5K
R359 360
X001 CSB503F30
L307 100 FLR50
C335 1000/10 SMG
C336 0.1/16
R364 4.7K
R370 4.7K
C334 1.0/10
R367 2.2K
Q314 2SA1576A
R368 100
R369 100
C337 100p-C
R365 100
R366 100
R363 4.7K
R371 4.7K
PTU1
TACL-20HP-D
GND
GND
GND
SW+35V
EPG+9V
GND
SW+5V
SCL2
SDA2
SCL1
SDA1
GND
APC_S
AGC_IN_S
IF_SYS2_S
SUB_AFC
GND
SUB_TV_MONO
GND
SUB_TV
PTU2
TACL-20HP-D
AGC_IN_M
MAIN_AFC
ST_DET/IF_SYS1_S
F_MONO/IF_SYS2_M
MTS/IF_SYS1_M
SA_DET/APC_M
GND
MAIN_TV
GND
MAIN_TV_R/AGC_ADJ_S
MAIN_TV_L/AGC_ADJ_M
AUDIO_MUTE
MAIN_TV_SIF
GND
H_IN
V_IN
Y_IN
GND
V_OUT
H_OUT

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

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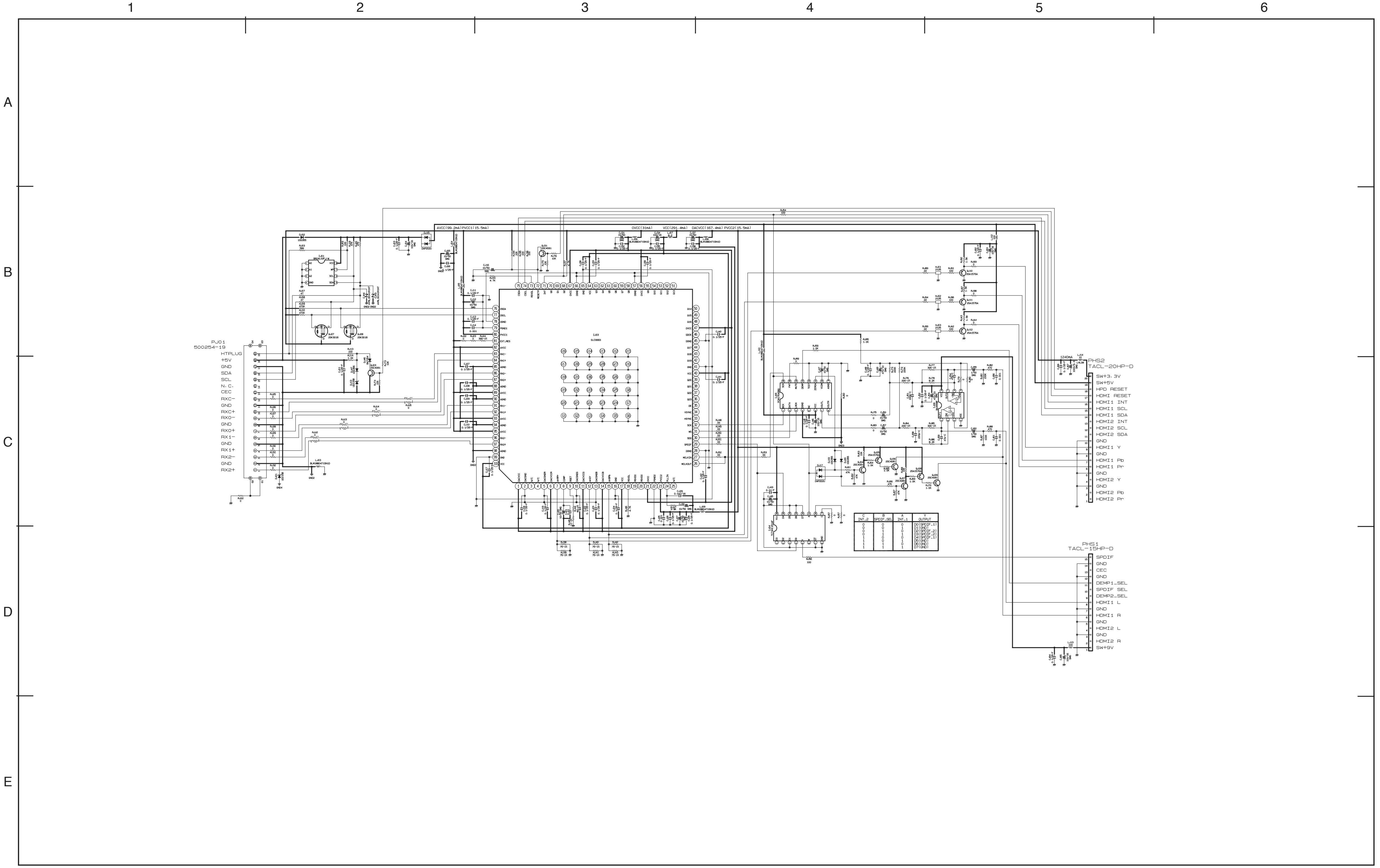
BASIC CIRCUIT DIAGRAM


1
2
3
4
5
6
A
B
C
D
E
PJ01
500254-19
HTPLUG
+5V
GND
SDA
SCL
N.C.
CEC
RXC-
GND
RXC+
RX0-
GND
RX0+
RX1-
GND
RX1+
RX2-
GND
RX2+
PHS2
TACL-20HP-D
SW+3.3V
SW+5V
HPD RESET
HDMI RESET
HDMI1 INT
HDMI1 SCL
HDMI1 SDA
HDMI2 INT
HDMI2 SCL
HDMI2 SDA
GND
HDMI1 Y
GND
HDMI1 Pb
HDMI1 Pr
GND
HDMI2 Y
GND
HDMI2 Pb
HDMI2 Pr
PHS1
TACL-15HP-D
SPDIF
GND
CEC
GND
DEMP1_SEL
SPDIF SEL
DEMP2_SEL
HDMI1 L
GND
HDMI1 R
GND
HDMI2 L
GND
HDMI2 R
SW+9V
DJ17
DAP202U
DJ19
1SS355
DJ20
1SS355
RJ61
47K
RJ62
47K
RJ63
10K
QJ04
2SC4081
RJ64
1.0K
QJ05
2SA1576A
RJ65
1.0K
QJ06
2SC4081
RJ66
47K
RJ67
47K
QJ07
2SC4081
RJ68
10K
RJ69
1.0K
QJ08
2SA1576A
RJ70
1.0K
QJ09
2SC4081
RJR7
0
RJ57
0

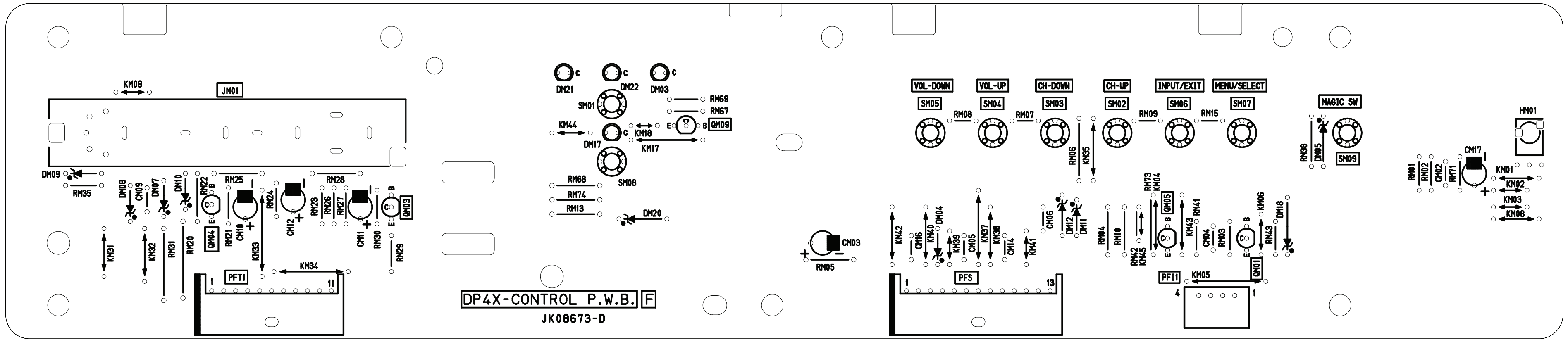
C INT_2	B SPDIF_SEL	A INT_1	Y OUTPUT
0	0	0	D0(SPDIF_1)
0	0	1	D1(GND)
0	1	0	D2(SPDIF_2)
0	1	1	D3(SPDIF_2)
1	0	0	D4(SPDIF_1)
1	0	1	D5(GND)
1	1	0	D6(GND)
1	1	1	D7(GND)

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

HDMI

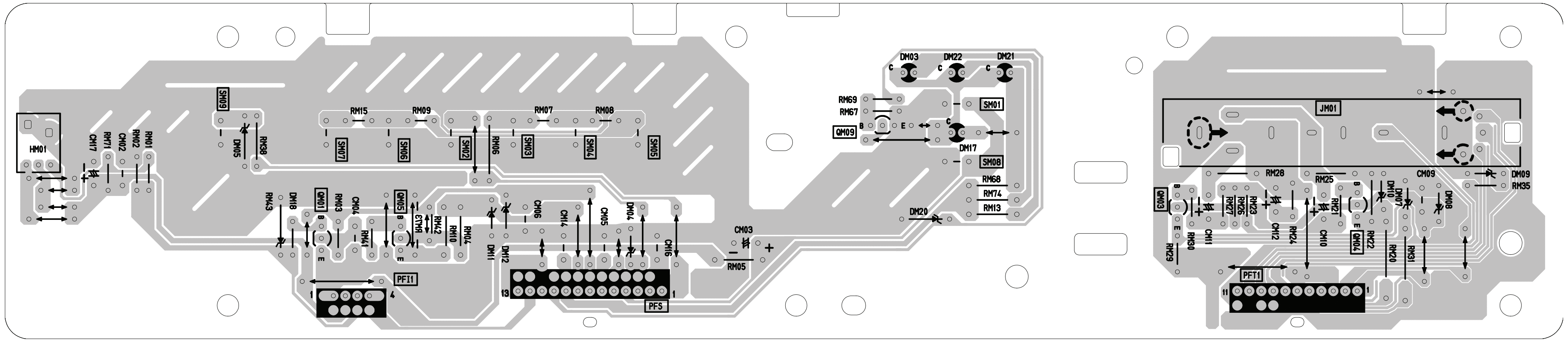
PRINTED CIRCUIT BOARD

CONTROL P.W.B. - PART SIDE


KM09
JM01
DM09
RM35
DM08
CM09
DM07
DM10
RM22
RM25
RM24
RM28
RM23
RM26
RM27
QM03
QM04
RM21
CM10
CM12
CM11
RM30
RM29
KM31
KM32
RM31
RM20
KM33
KM34
PFT1
1
11
DM21
DM22
DM03
SM01
RM69
RM67
KM44
KM18
QM09
DM17
KM17
SM08
RM68
RM74
RM13
DM20
DP4X-CONTROL P.W.B. F
JK08673-D
CM03
RM05
VOL-DOWN
SM05
RM08
VOL-UP
SM04
RM07
CH-DOWN
SM03
RM06
KM35
CH-UP
SM02
RM09
INPUT/EXIT
SM06
RM15
MENU/SELECT
SM07
MAGIC SW
SM09
RM38
DM05
HM01
KM42
CM16
KM40
DM04
KM39
CM05
KM37
KM38
CM14
KM41
CM06
DM12
DM11
PFS
1
13
RM04
RM10
RM42
KM45
RM73
KM04
QM05
KM43
RM41
CM04
RM03
KM06
RM43
DM18
QM01
PFI1
KM05
4
1
RM01
RM02
CM02
RM71
CM17
KM01
KM02
KM03
KM08

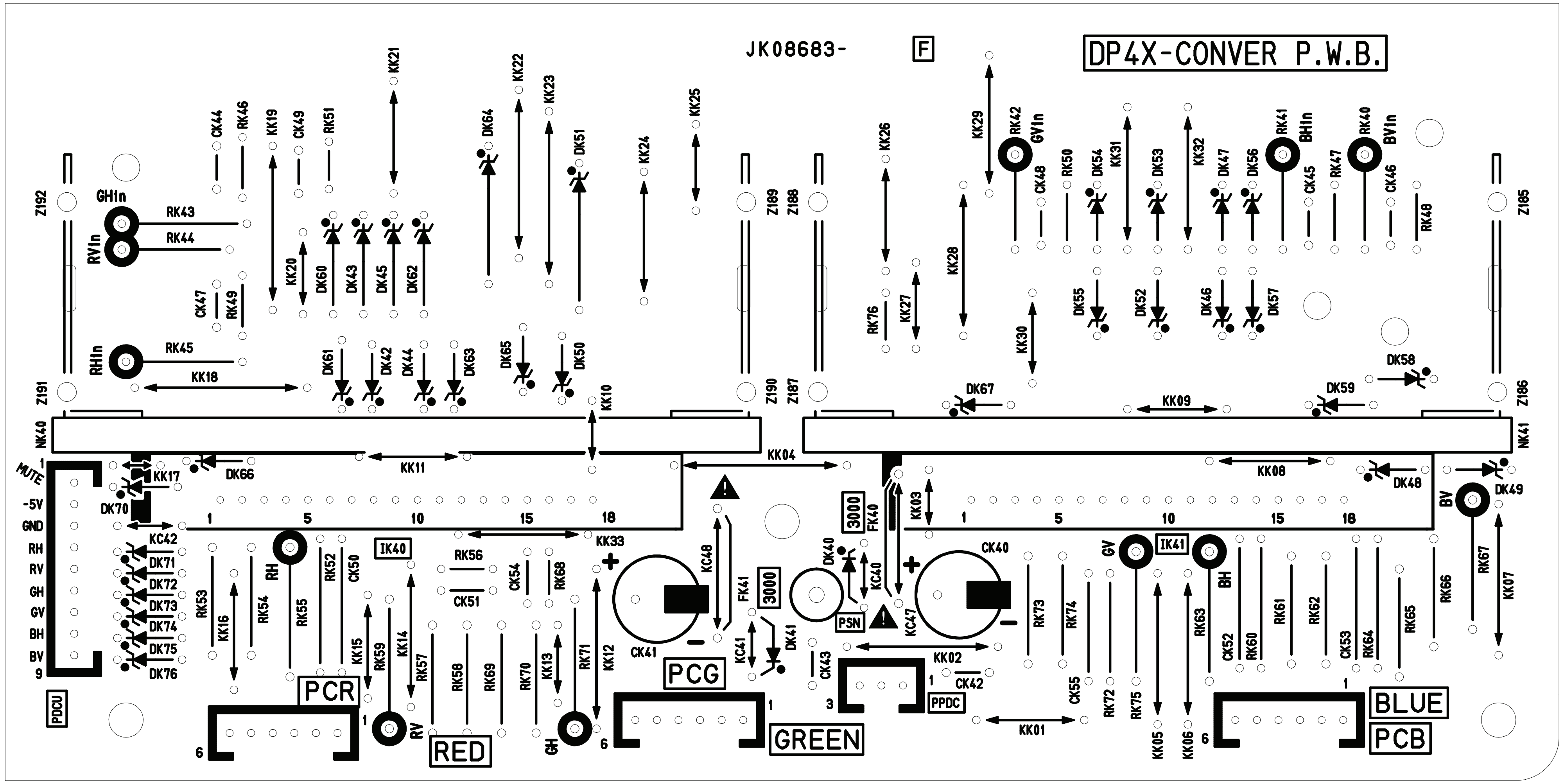
PRINTED CIRCUIT BOARD

CONTROL P.W.B. - PATTERN SIDE


HM01
CM17
RM71
CM02
RM02
RM01
SM09
DM15
RM38
RM15
RM09
RM07
RM08
SM07
SM06
SM02
RM06
SM03
SM04
SM05
RM43
DM18
QM01
RM03
CM04
RM41
QM05
CM13
RM42
RM10
RM04
DM11
DM12
CM06
CM14
CM05
DM04
CM16
PFI1
PF5
CM03
RM05
DM03
DM22
DM21
RM69
RM67
QM09
SM01
DM17
SM08
RM68
RM74
RM13
DM20
JM01
RM28
RM25
CM09
DM09
RM35
QM03
RM27
RM26
RM21
DM10
DM07
DM08
RM30
CM11
CM12
RM24
CM10
QM04
RM22
RM20
RM31
RM29
PFT1

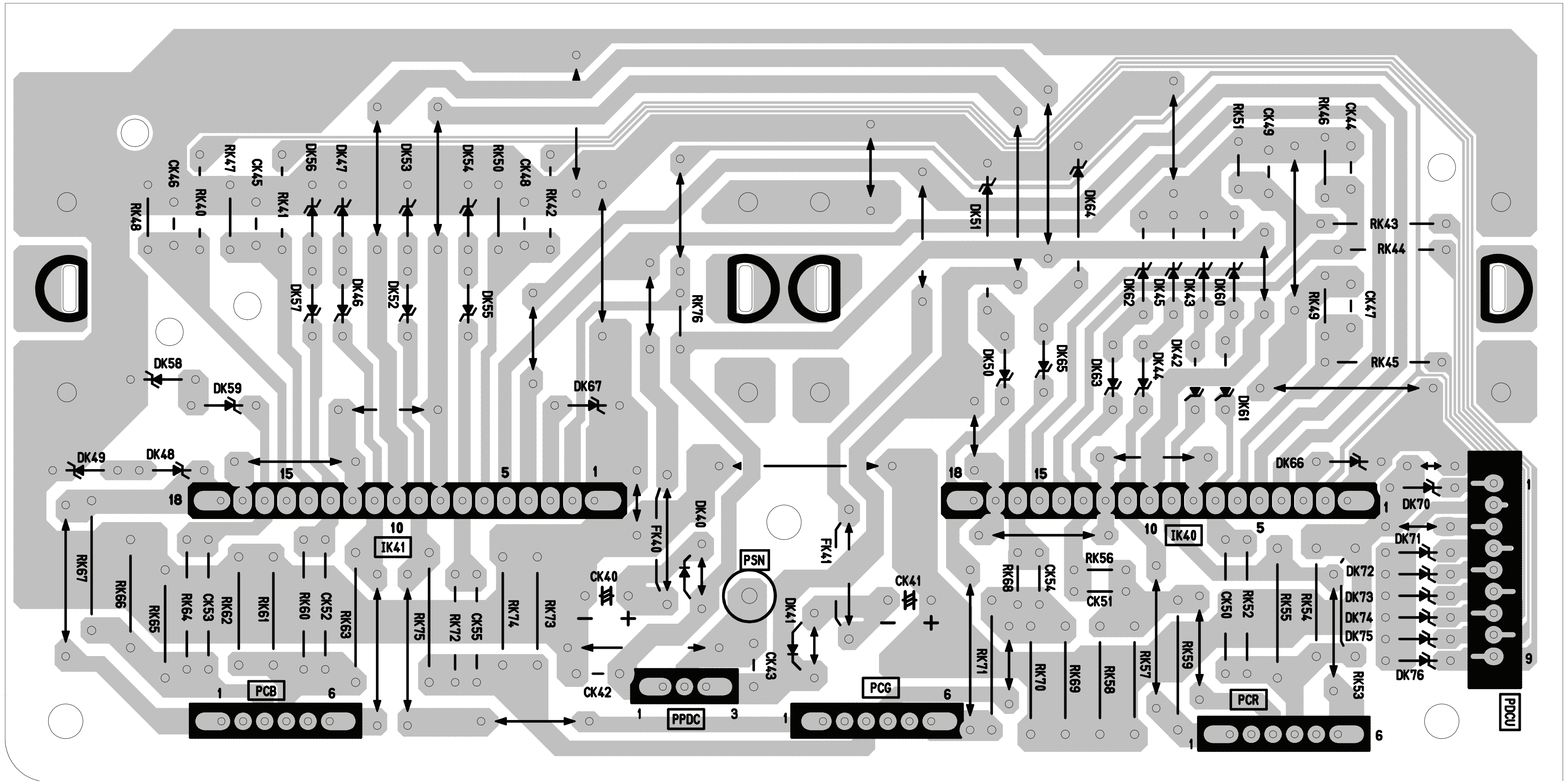
PRINTED CIRCUIT BOARD

CONVER. P.W.B. - PART SIDE


JK08683-
F
DP4X-CONVER P.W.B.
Z192
GHin
RVin
RHin
RK43
RK44
RK45
CK47
RK49
KK18
CK44
RK46
KK19
CK49
RK51
KK20
DK60
DK43
DK45
DK62
KK21
DK61
DK42
DK44
DK63
DK64
KK22
KK23
DK51
DK65
DK50
KK24
KK10
KK25
Z191
Z189
Z188
Z190
Z187
KK26
RK76
KK27
KK28
KK29
RK42
GVin
CK48
KK30
RK50
DK54
KK31
DK55
DK53
DK52
KK32
DK47
DK56
DK46
DK57
RK41
BHin
CK45
RK47
RK40
BVin
CK46
RK48
Z185
Z186
DK58
DK67
KK09
DK59
NK40
NK41
MUTE
1
-5V
GND
RH
RV
GH
GV
BH
BV
9
KK17
DK66
DK70
KK11
KK04
KC42
DK71
DK72
DK73
DK74
DK75
DK76
PDCU
1
5
10
15
18
RK53
KK16
RK54
RH
RK55
RK52
CK50
KK15
RK59
KK14
RK57
IK40
RK56
CK51
RK58
RK69
CK54
RK68
RK70
KK13
RK71
KK33
KK12
+
CK41
KC48
−
PCR
RV
RED
GH
PCG
GREEN
6
1
3000
FK40
FK41
3000
DK40
KC40
DK41
KC41
PSN
KC47
CK43
KK03
KK02
CK42
PPDC
KK01
CK40
KK08
DK48
DK49
BV
1
5
10
15
18
GV
IK41
BH
RK73
RK74
CK55
RK72
RK75
KK05
KK06
RK63
CK52
RK60
RK61
RK62
CK53
RK64
RK65
RK66
RK67
KK07
BLUE
PCB
3

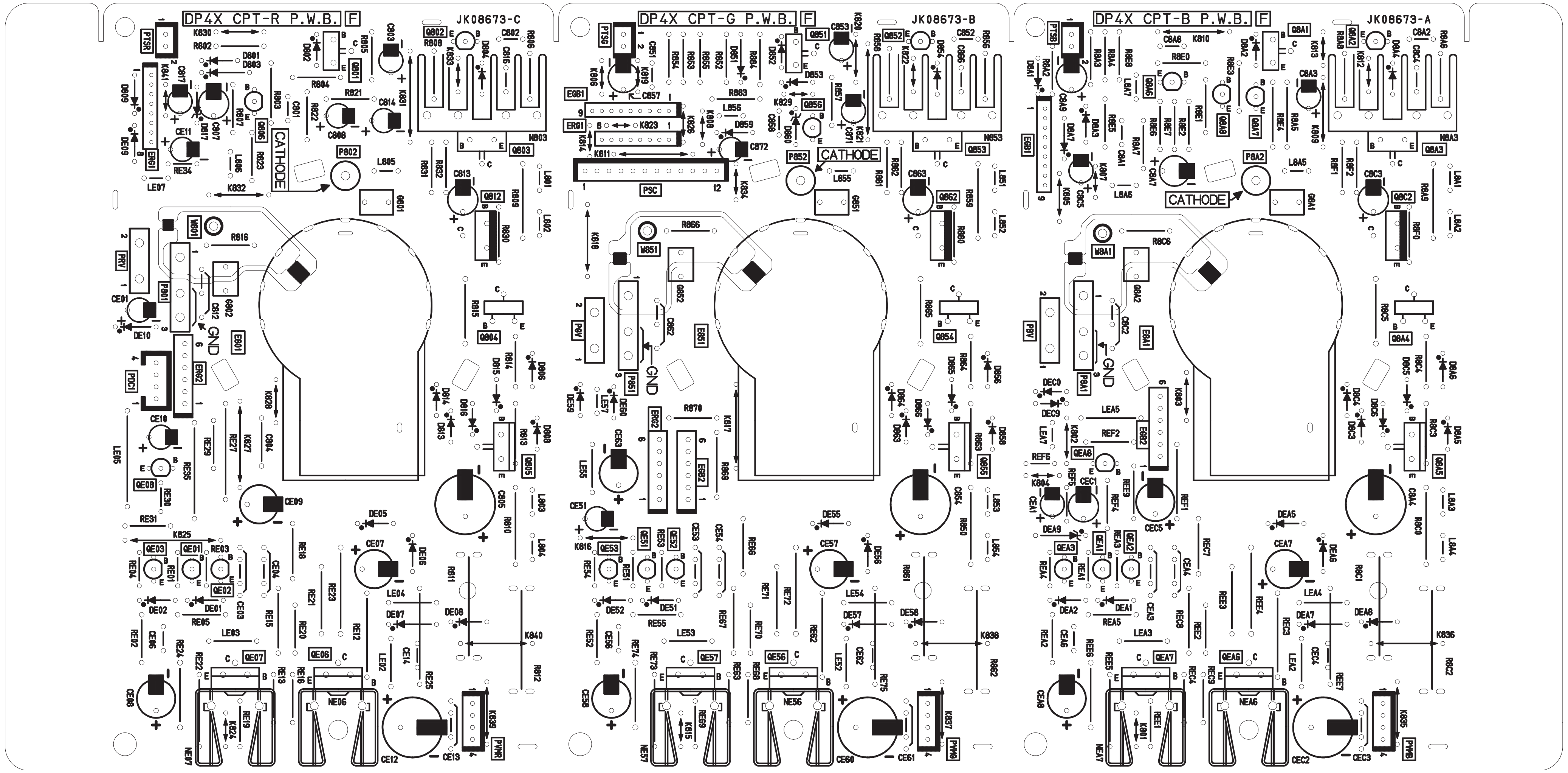
PRINTED CIRCUIT BOARD

CONVER. P.W.B. - PATTERN SIDE


RK48
CK46
RK40
RK47
CK45
RK41
DK56
DK47
DK53
DK54
RK50
CK48
RK42
DK57
DK46
DK52
DK55
RK76
DK51
DK64
RK51
CK49
RK46
CK44
RK43
RK44
DK62
DK45
DK43
DK60
RK49
CK47
DK50
DK65
DK63
DK44
DK42
DK61
RK45
DK58
DK59
DK67
DK49
DK48
15
5
1
18
DK66
18
15
1
10
IK41
10
IK40
5
DK70
DK71
DK72
DK73
DK74
DK75
DK76
1
9
PDCU
FK40
DK40
PSN
FK41
CK40
CK41
RK67
RK66
RK65
RK64
CK53
RK62
RK61
RK60
CK52
RK63
RK75
RK72
CK55
RK74
RK73
CK42
CK43
DK41
1
PCB
6
1
PPDC
3
1
PCG
6
RK68
CK54
RK56
CK51
RK71
RK70
RK69
RK58
RK57
RK59
CK50
RK52
RK55
RK54
RK53
PCR
1
6

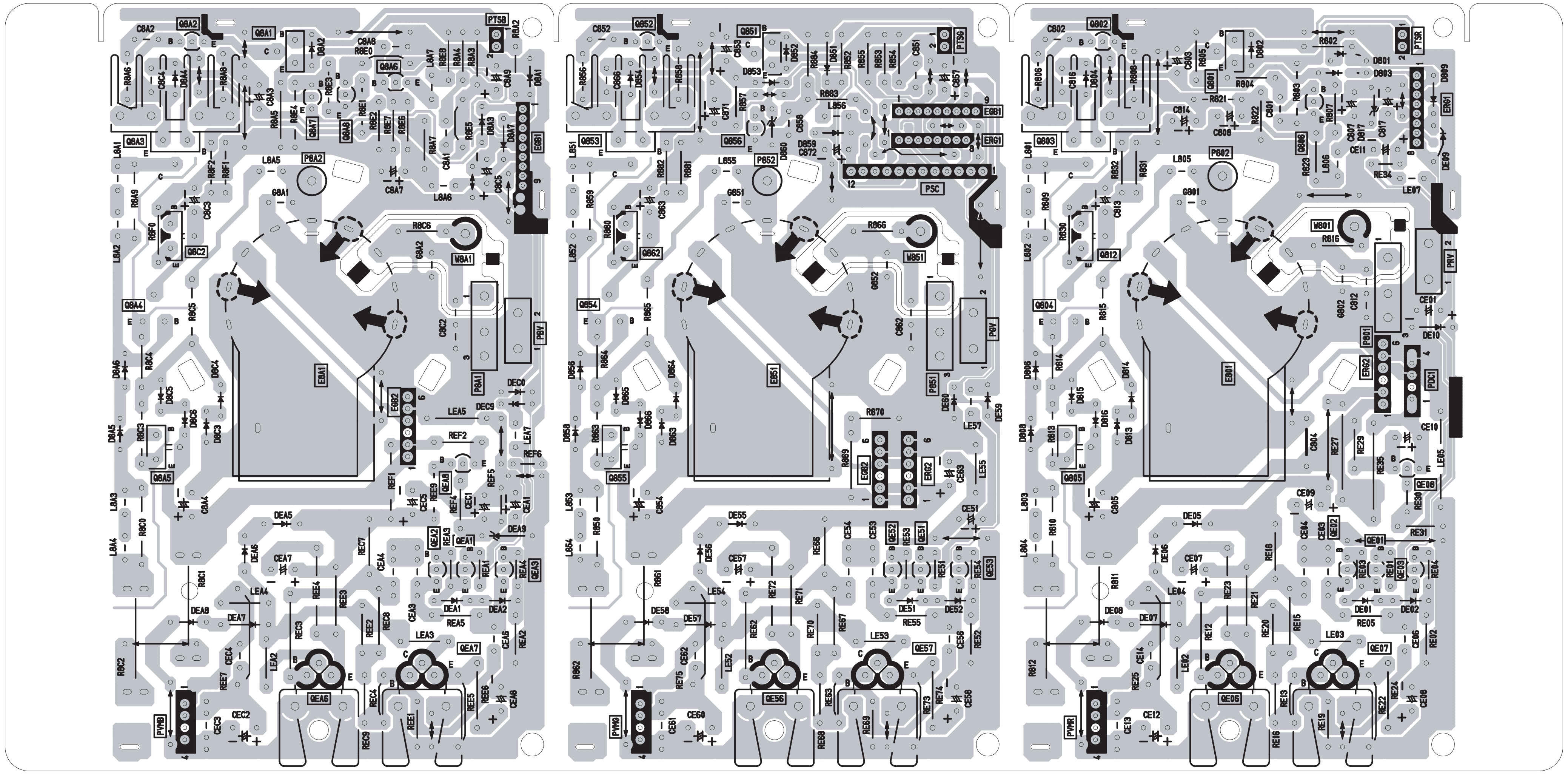
PRINTED CIRCUIT BOARD

CPT P.W.B. - PART SIDE


DP4X CPT-R P.W.B. F
JK08673-C
DP4X CPT-G P.W.B. F
JK08673-B
DP4X CPT-B P.W.B. F
JK08673-A
CATHODE
GND
PSC

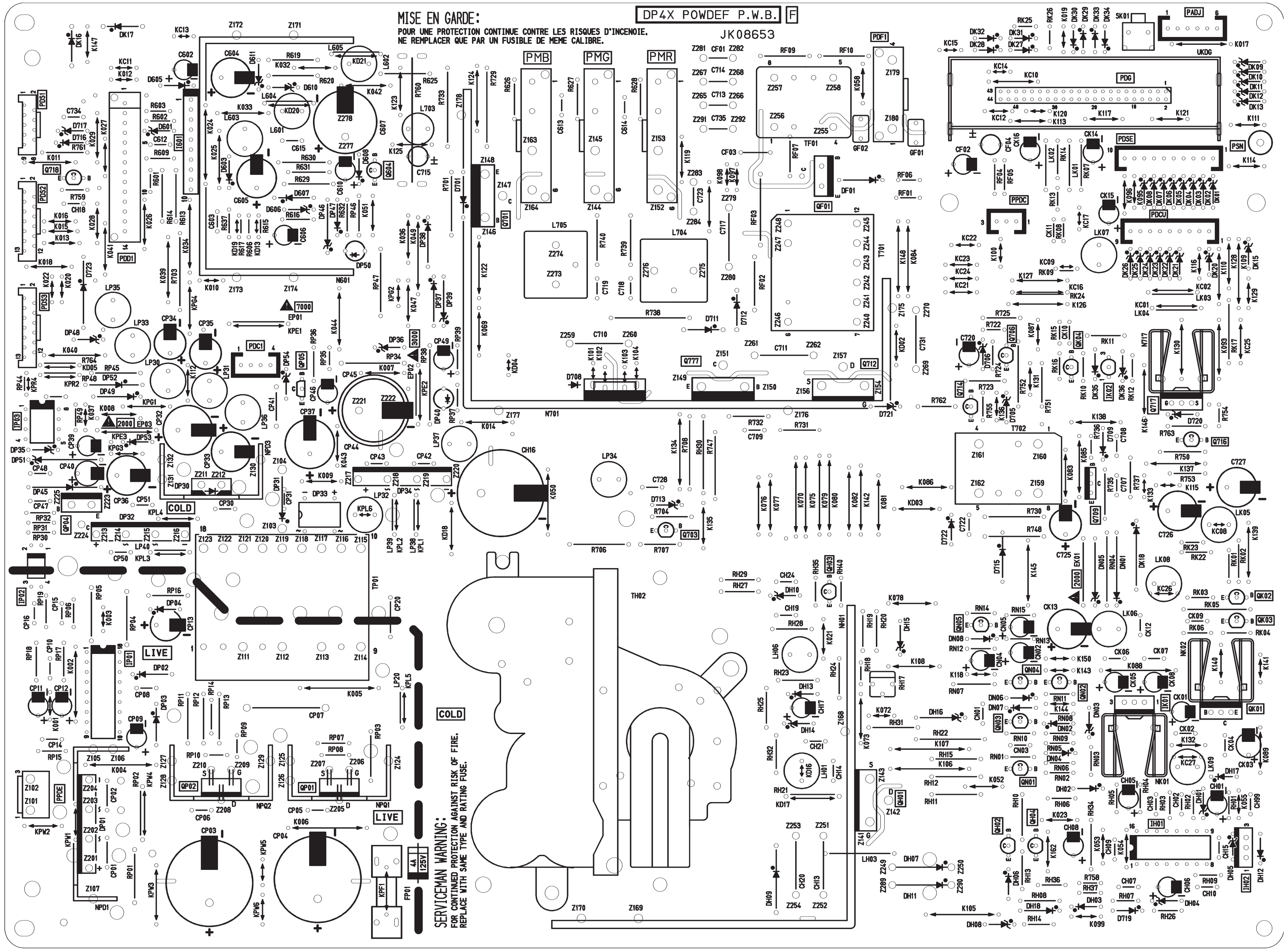
PRINTED CIRCUIT BOARD

CPT P.W.B. - PATTERN SIDE



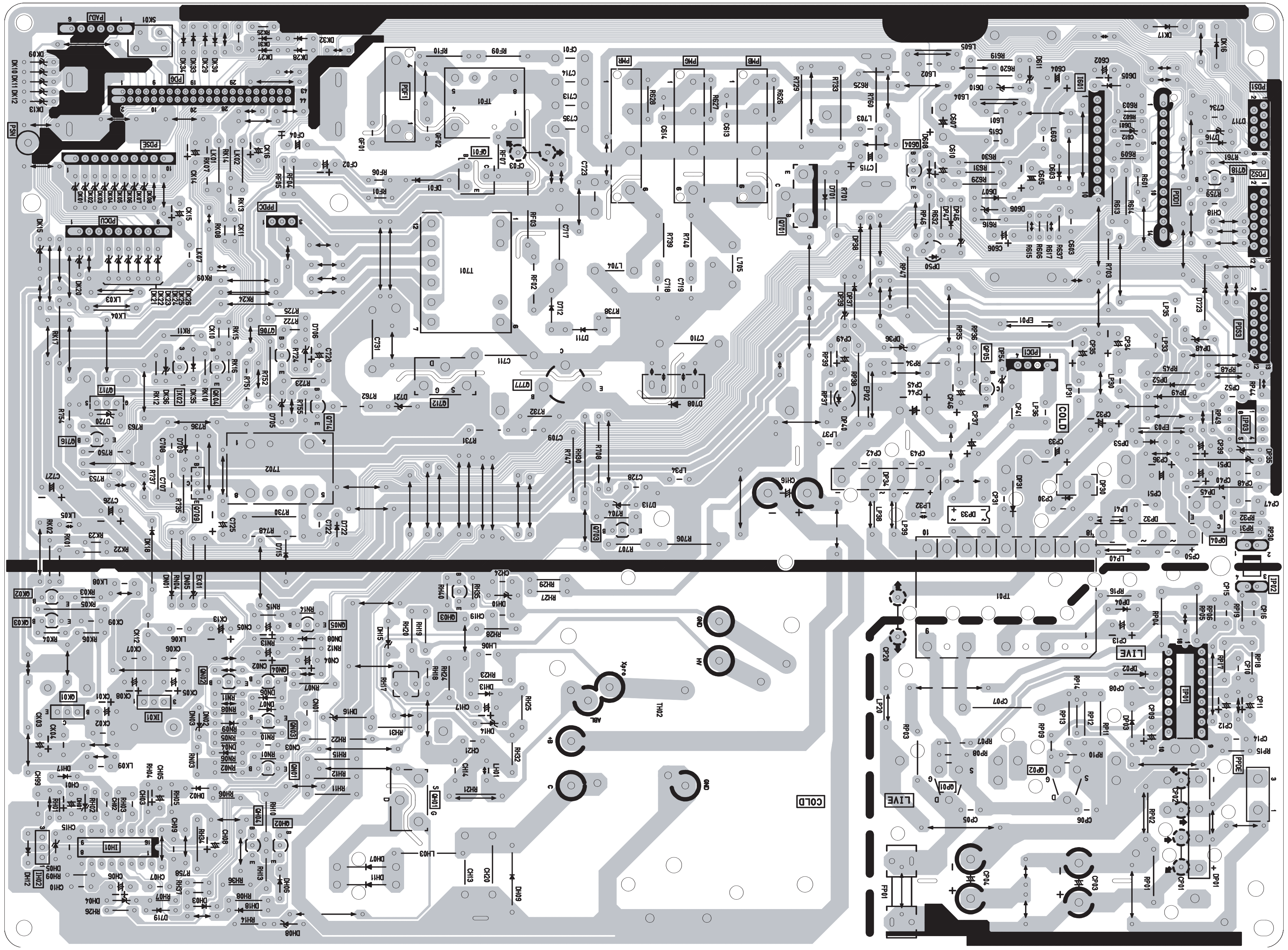
PRINTED CIRCUIT BOARD

DEFLECTION P.W.B. - PART SIDE


MISE EN GARDE:
POUR UNE PROTECTION CONTINUE CONTRE LES RISQUES D'INCENOIE.
NE REMPLACER QUE PAR UN FUSIBLE DE MEME CALIBRE.
DP4X POWDEF P.W.B.
F
JK08653
PMB
PMG
PMR
COLD
LIVE
COLD
LIVE
SERVICEMAN WARNING:
FOR CONTINUED PROTECTION AGAINST RISK OF FIRE.
REPLACE WITH SAME TYPE AND RATING FUSE.
FP01
4A
125V

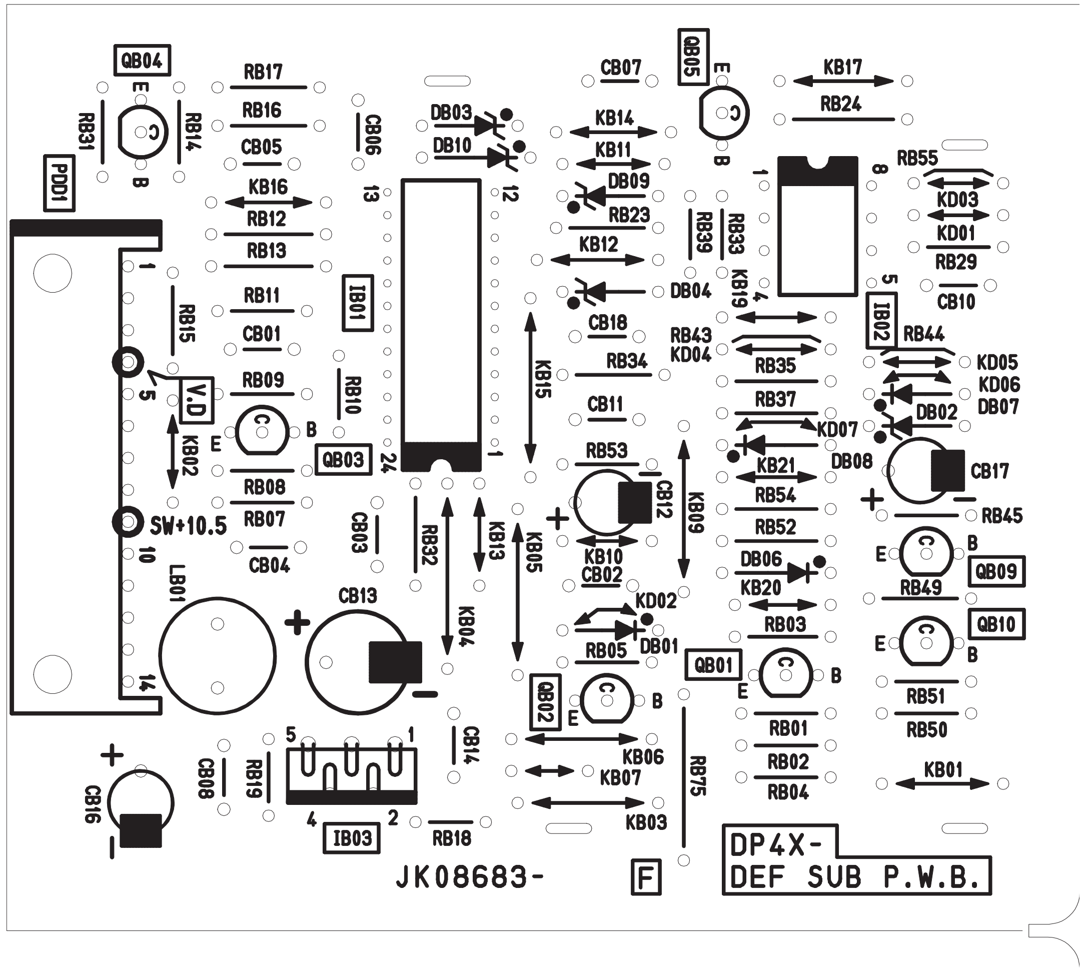
PRINTED CIRCUIT BOARD

DEFLECTION P.W.B. - PATTERN SIDE


COLD
LIVE
COLD
LIVE

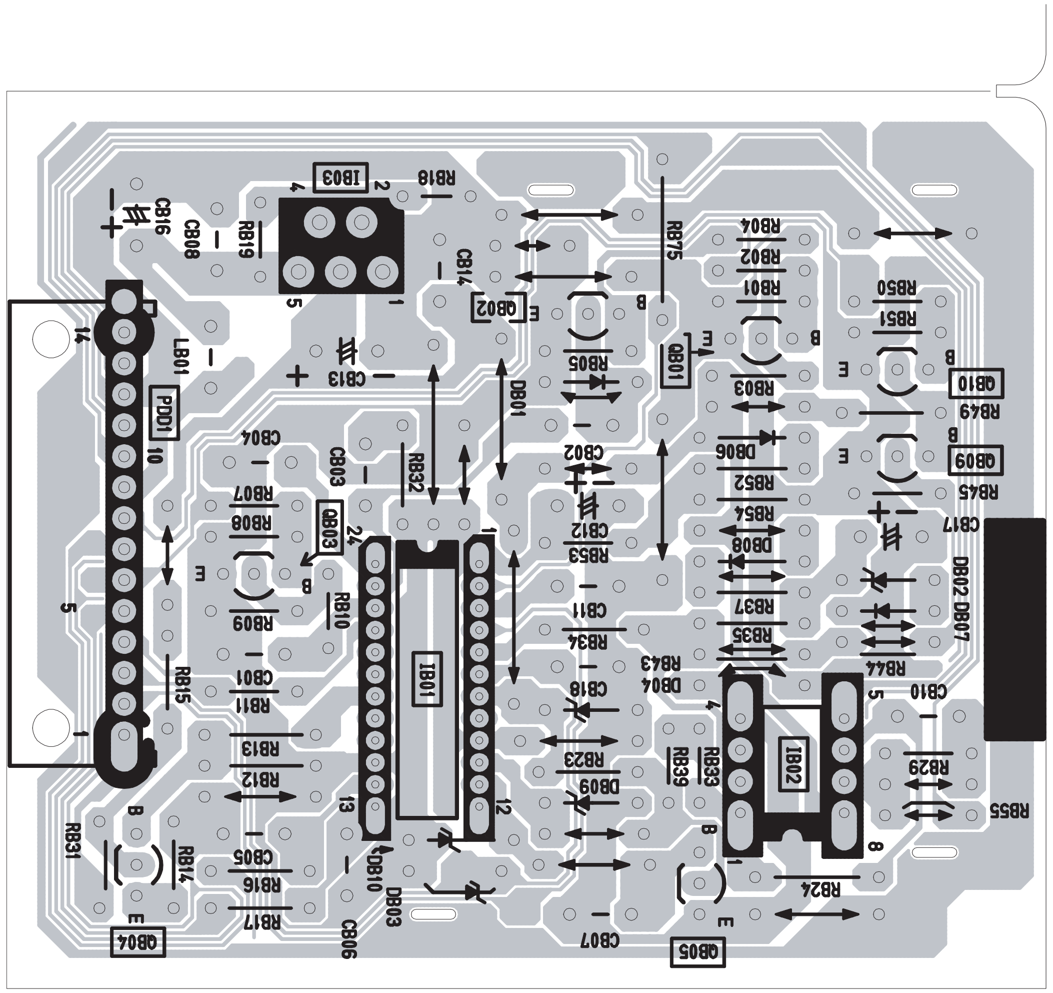
PRINTED CIRCUIT BOARD

SUB DEFLECTION P.W.B. - PART SIDE


QB04
RB17
RB16
CB05
CB06
DB03
DB10
CB07
QB05
KB17
RB24
RB31
RB14
KB14
KB11
RB55
PDD1
KB16
RB12
RB13
DB09
RB23
RB39
RB33
KD03
KD01
RB29
KB12
DB04
KB19
IB01
RB11
CB01
CB10
RB15
CB18
RB43
KD04
IB02
RB44
KD05
KD06
DB07
DB02
RB34
RB35
RB09
RB10
V.D
KB15
CB11
RB37
KB02
QB03
KD07
RB53
KB21
DB08
CB17
RB08
RB07
RB54
RB45
CB03
RB32
KB13
KB05
CB12
KB09
RB52
SW+10.5
CB04
KB10
CB02
DB06
QB09
LB01
CB13
KB04
KD02
KB20
RB49
RB05
DB01
RB03
QB10
QB01
QB02
RB01
RB51
RB50
CB08
RB19
CB14
KB06
KB07
RB75
RB02
RB04
KB01
CB16
IB03
RB18
KB03
JK08683-
F
DP4X-
DEF SUB P.W.B.

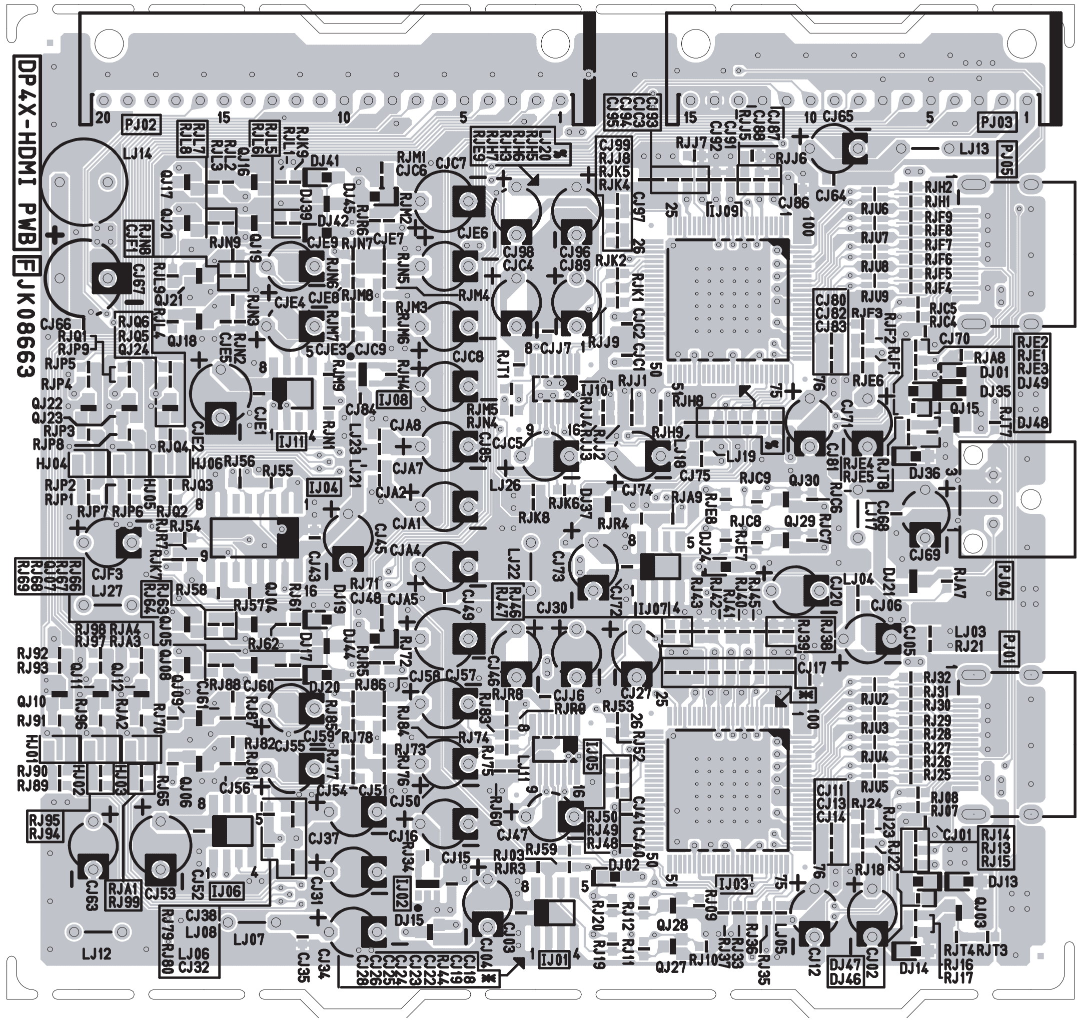
PRINTED CIRCUIT BOARD

SUB DEFLECTION P.W.B. - PATTERN SIDE


IB03
RB18
CB16
CB08
RB19
CB14
QB02
RB75
RB04
RB02
RB01
RB50
RB51
QB10
RB49
QB09
RB45
CB17
DB02
DB07
RB44
CB10
RB29
RB55
IB02
RB24
QB05
CB07
RB33
RB39
DB09
RB23
CB18
DB04
RB43
RB34
CB11
RB53
CB12
CB02
RB05
QB01
DB01
RB32
CB03
CB13
LB01
PDD1
CB04
RB07
RB08
QB03
RB10
RB09
CB01
RB11
RB13
RB12
RB15
RB31
RB14
CB05
RB16
RB17
QB04
DB10
DB03
CB06
IB01
RB03
DB06
RB52
RB54
DB08
RB37
RB35

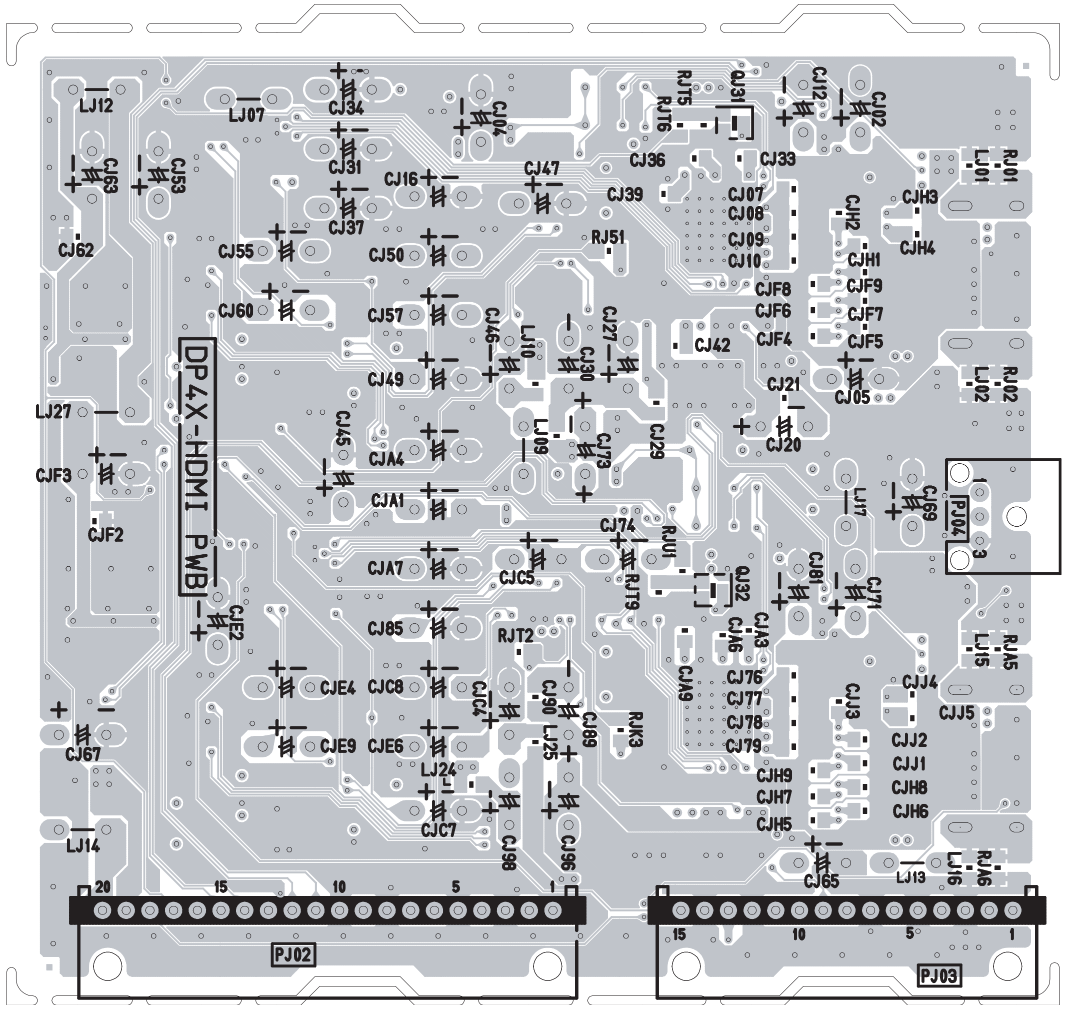
PRINTED CIRCUIT BOARD

HDMI P.W.B. - PART SIDE


DP4X-HDMI PWB
F
JK08663

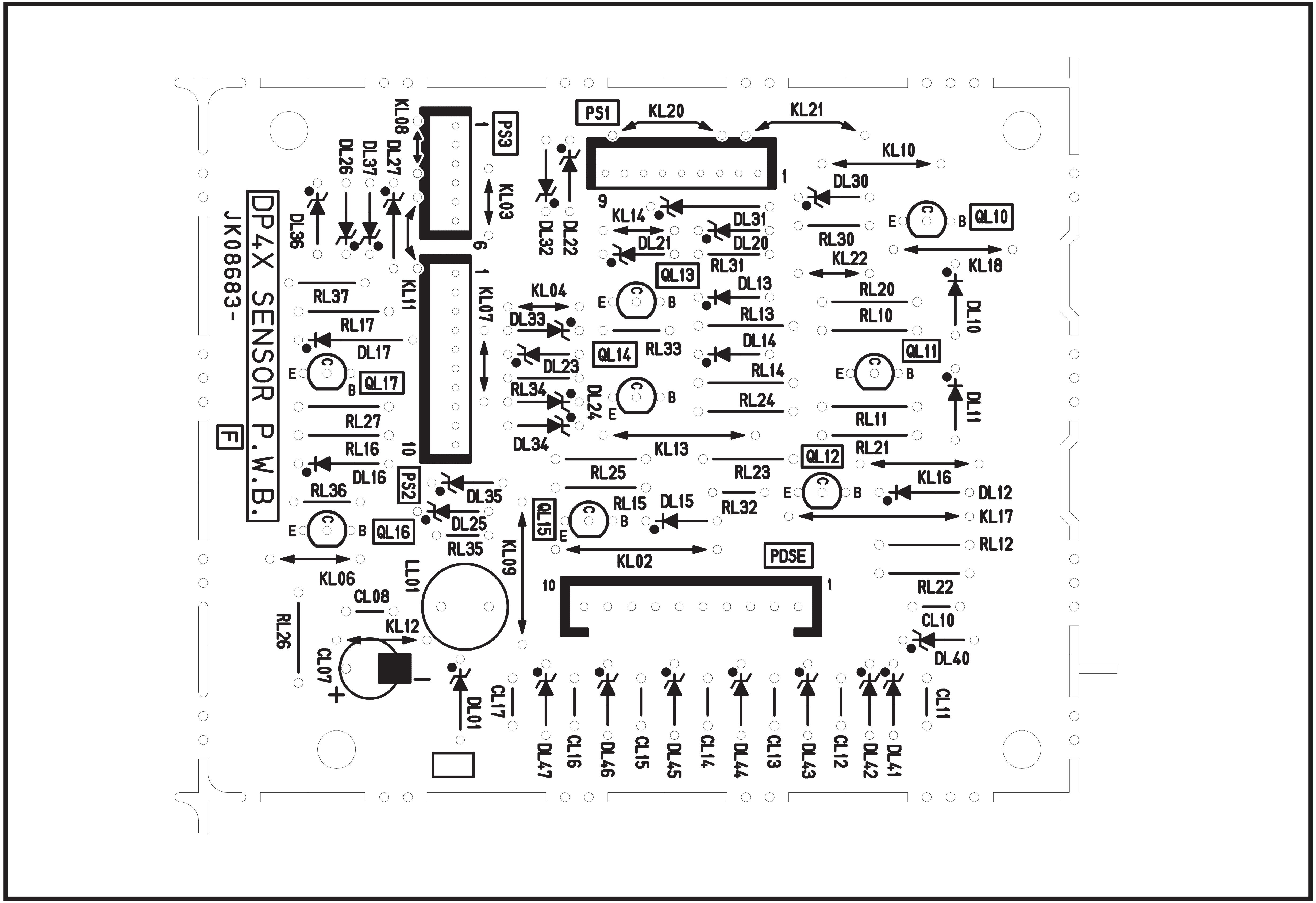
PRINTED CIRCUIT BOARD

HDMI P.W.B. - PATTERN SIDE


DP4X-HDMI_PWB
LJ12
LJ07
CJ34
CJ31
CJ37
CJ04
CJ16
CJ47
CJ36
CJ39
RJT5
RJT6
QJ31
CJ33
CJ12
CJ02
RJ01
LJ01
CJ63
CJ53
CJ62
CJ55
CJ50
RJ51
CJ07
CJ08
CJ09
CJ10
CJH2
CJH3
CJH4
CJH1
CJF8
CJF9
CJF6
CJF7
CJF4
CJF5
CJ60
CJ57
CJ46
LJ10
CJ27
CJ30
CJ42
CJ49
CJ21
CJ05
LJ02
RJ02
LJ27
CJ45
CJA4
LJ09
CJ73
CJ29
CJ20
CJF3
CJA1
CJ74
RJU1
LJ17
CJ69
PJ04
3
CJF2
CJA7
CJC5
RJT9
QJ32
CJ81
CJ71
CJE2
CJ85
RJT2
CJA6
CJA3
LJ15
RJA5
CJE4
CJC8
CJC4
CJ90
CJA9
CJ76
CJ77
CJ78
CJ79
CJJ3
CJJ4
CJJ5
CJE9
CJE6
LJ25
CJ89
RJK3
CJJ2
CJJ1
CJ67
LJ24
CJH9
CJH7
CJH8
CJH6
CJC7
CJ98
CJ96
CJH5
LJ14
CJ65
LJ13
LJ16
RJA6
20
15
10
5
1
PJ02
15
10
5
1
PJ03

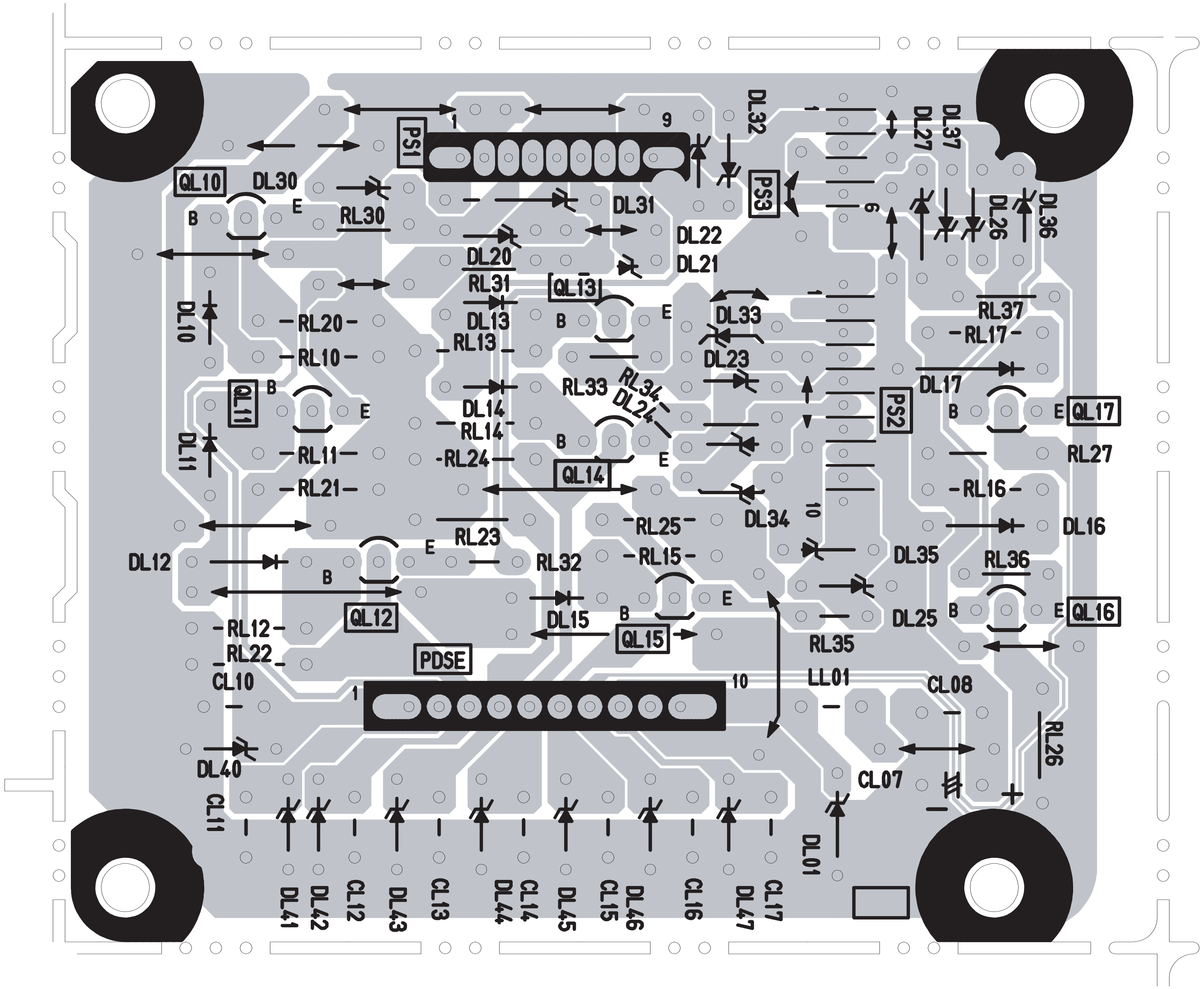
PRINTED CIRCUIT BOARD

SENSOR - PART SIDE


DP4X SENSOR P.W.B.
JK08683-
F
PS1
PS2
PS3
PDSE
KL02
KL03
KL04
KL06
KL07
KL08
KL09
KL10
KL11
KL12
KL13
KL14
KL16
KL17
KL18
KL20
KL21
KL22
QL10
QL11
QL12
QL13
QL14
QL15
QL16
QL17
E
B
C
RL10
RL11
RL12
RL13
RL14
RL15
RL16
RL17
RL20
RL21
RL22
RL23
RL24
RL25
RL26
RL27
RL30
RL31
RL32
RL33
RL34
RL35
RL36
RL37
DL01
DL10
DL11
DL12
DL13
DL14
DL15
DL16
DL17
DL20
DL21
DL22
DL23
DL24
DL25
DL26
DL27
DL30
DL31
DL32
DL33
DL34
DL35
DL36
DL37
DL40
DL41
DL42
DL43
DL44
DL45
DL46
DL47
CL07
CL08
CL10
CL11
CL12
CL13
CL14
CL15
CL16
CL17
LL01
1
9
10
+
-

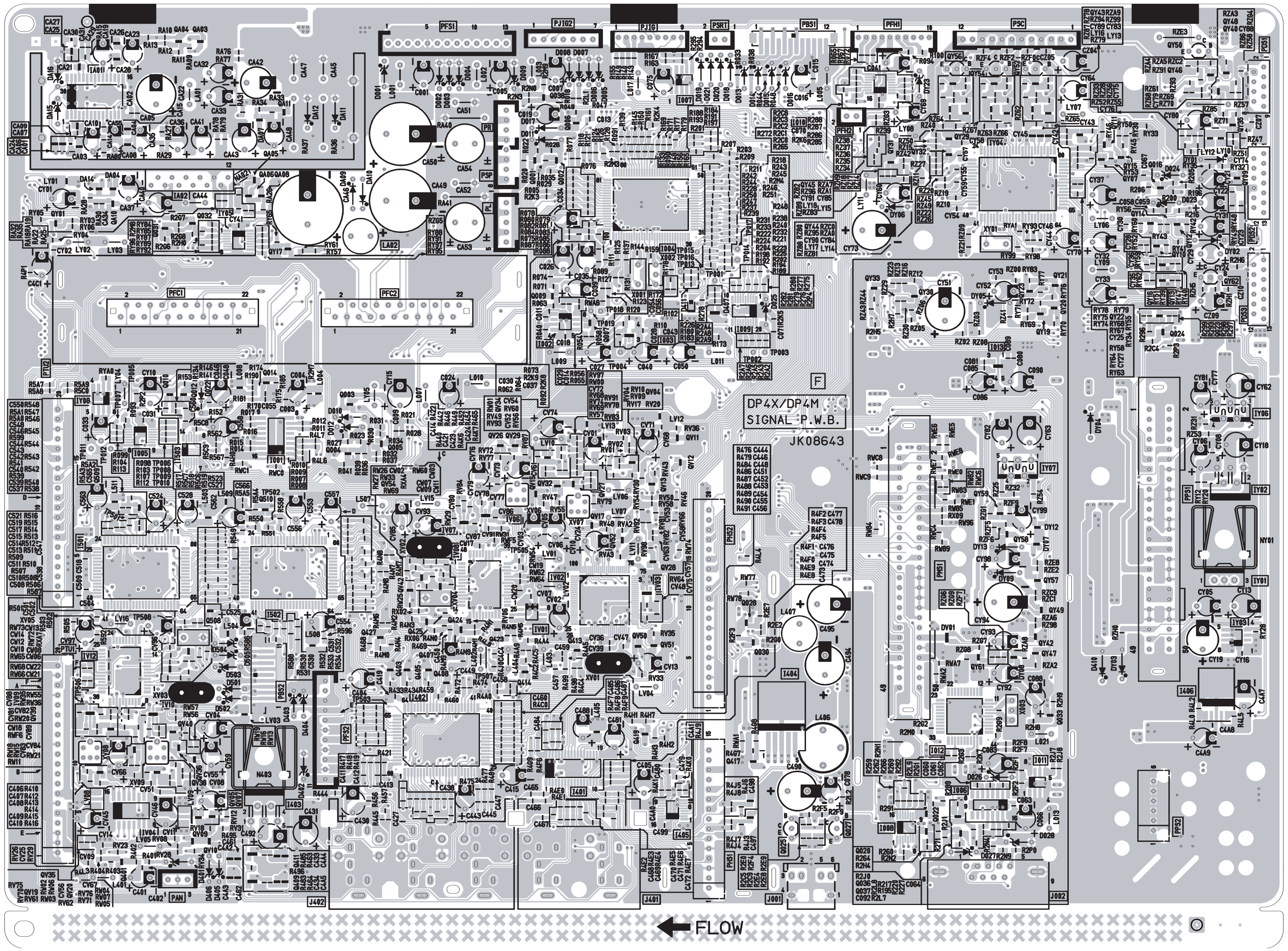
PRINTED CIRCUIT BOARD

SENSOR - PATTERN SIDE


PS1
1
9
DL32
DL27
DL37
PS3
6
DL26
DL36
QL10
DL30
B
E
RL30
DL31
DL22
DL20
DL21
RL31
QL13
DL13
RL13
RL20
DL33
RL37
RL17
DL10
RL10
DL23
QL11
RL33
RL34
DL24
DL14
RL14
DL17
PS2
QL17
DL11
RL11
RL24
QL14
RL27
RL21
RL16
RL25
DL34
DL16
RL23
10
DL35
DL12
RL32
RL15
RL36
QL12
DL15
QL15
DL25
QL16
RL12
RL22
RL35
PDSE
CL10
LL01
CL08
RL26
DL40
CL07
CL11
DL01
DL41
DL42
CL12
DL43
CL13
DL44
CL14
DL45
CL15
DL46
CL16
DL47
CL17

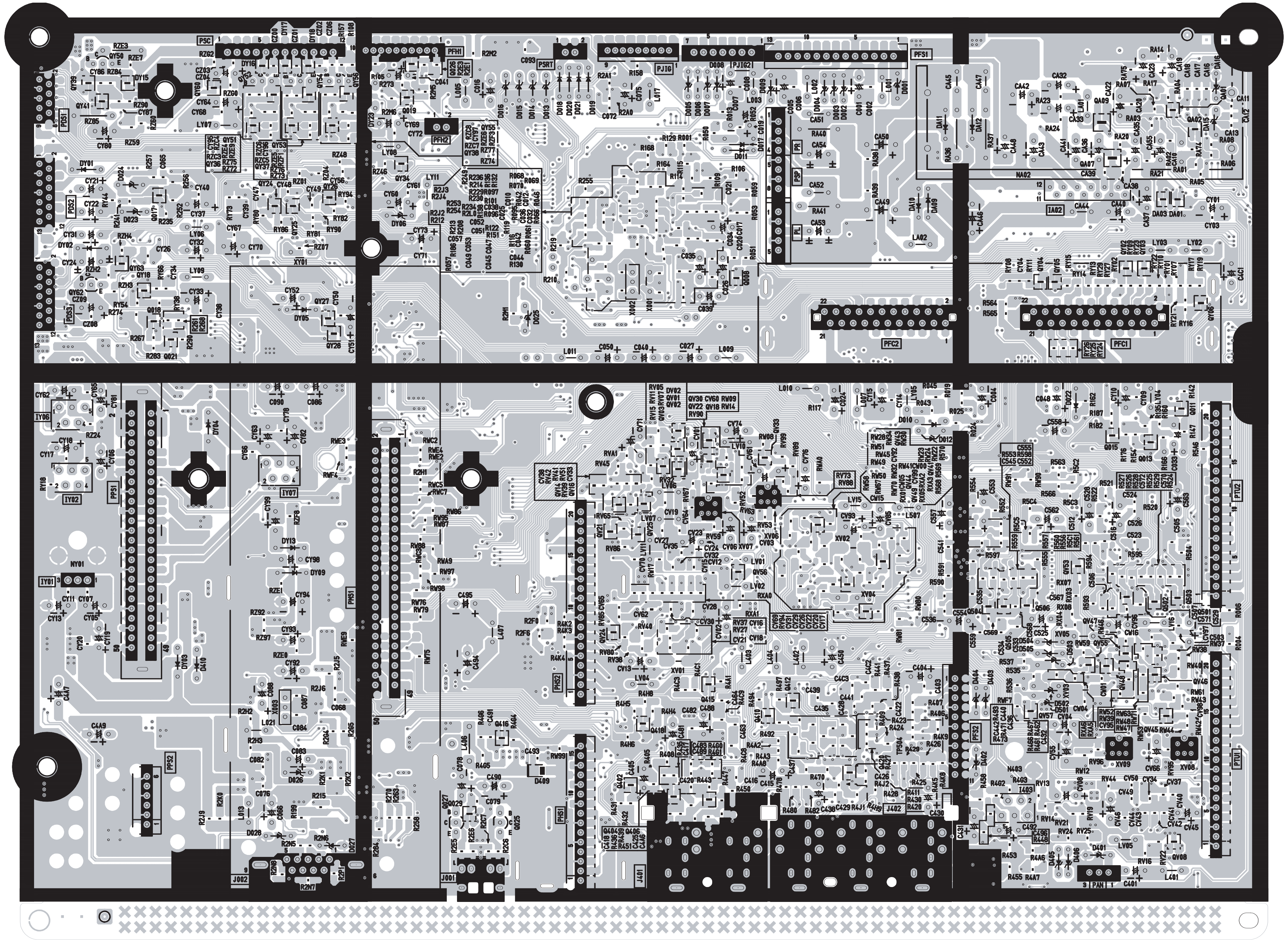
PRINTED CIRCUIT BOARD

SIGNAL - PART SIDE


DP4X/DP4M
SIGNAL P.W.B.
JK08643
F
FLOW
PFS1
PJ102
PJ101
PSRT
PBS1
PFH1
PSC
PFC1
PFC2
J402
J401
J001
J002
PAN

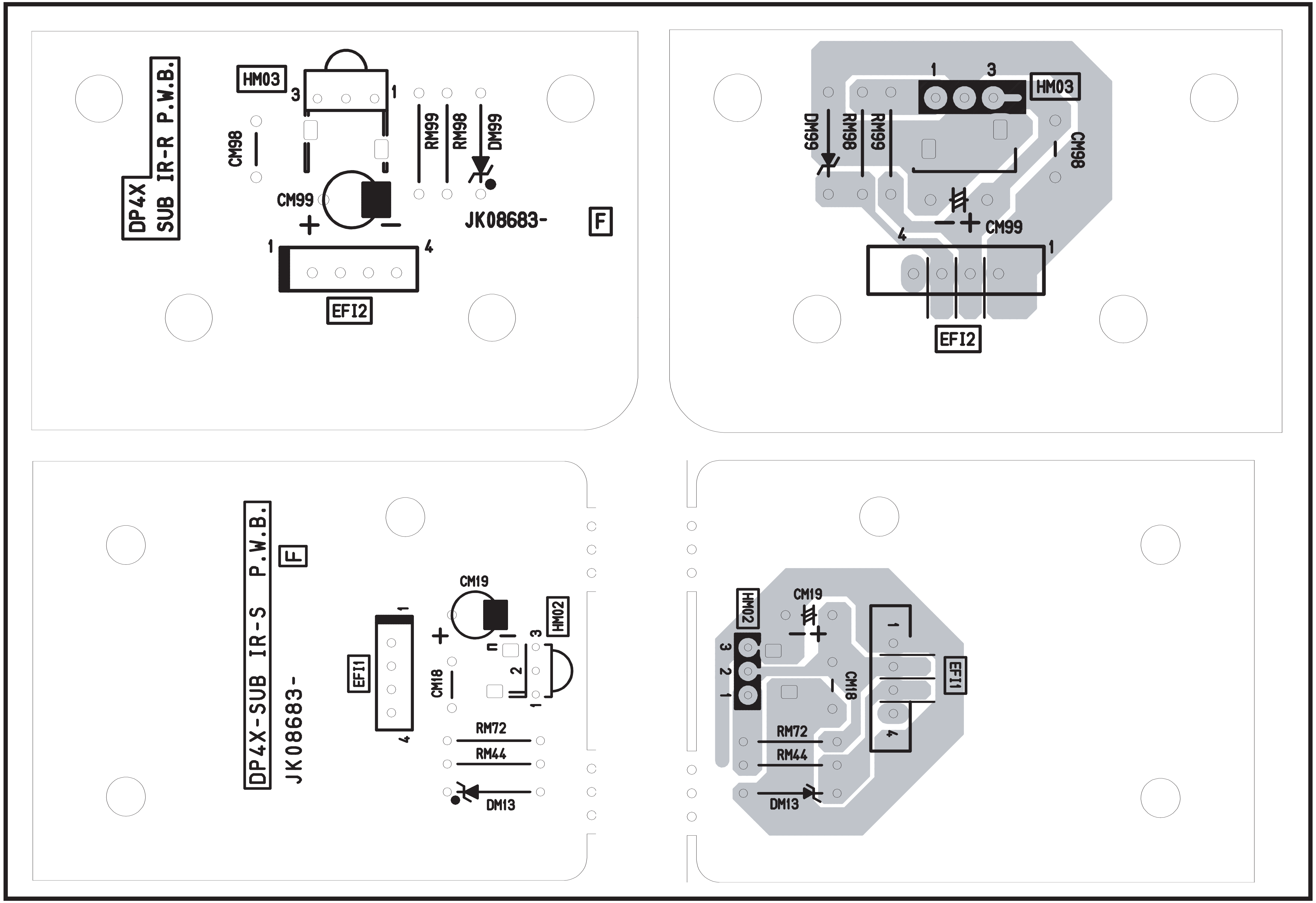
PRINTED CIRCUIT BOARD

SIGNAL - PATTERN SIDE



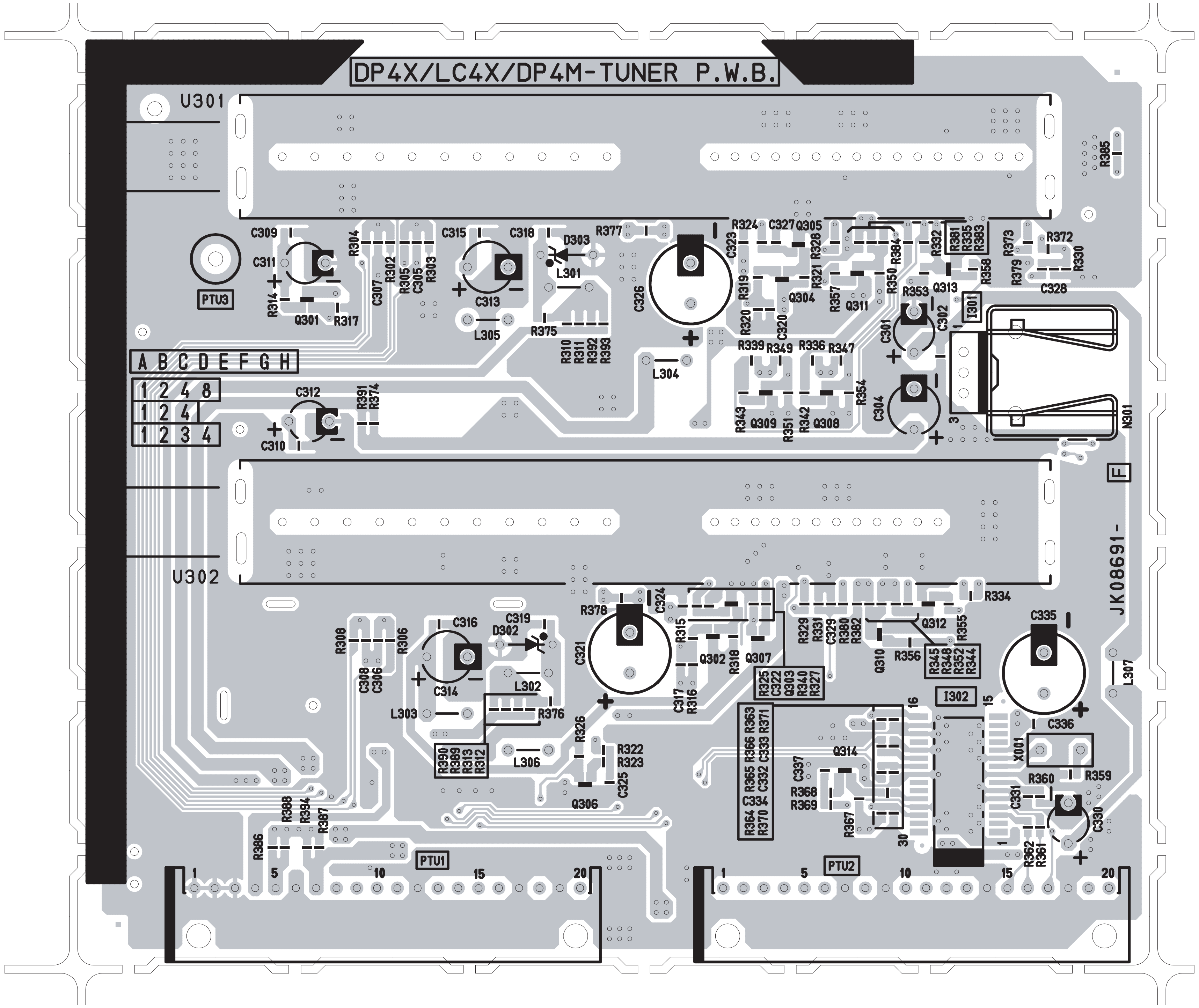
PRINTED CIRCUIT BOARD

SUB IR-R - PART SIDE


DP4X
SUB IR-R P.W.B.
HM03
3
1
CM98
RM99
RM98
DM99
CM99
JK08683-
F
1
4
EFI2
HM03
1
3
DM99
RM98
RM99
CM98
CM99
4
1
EFI2
DP4X-SUB IR-S P.W.B.
JK08683-
F
CM19
HM02
EFI1
1
4
3
2
1
CM18
RM72
RM44
DM13
HM02
CM19
3
2
1
CM18
EFI1
1
4
RM72
RM44
DM13

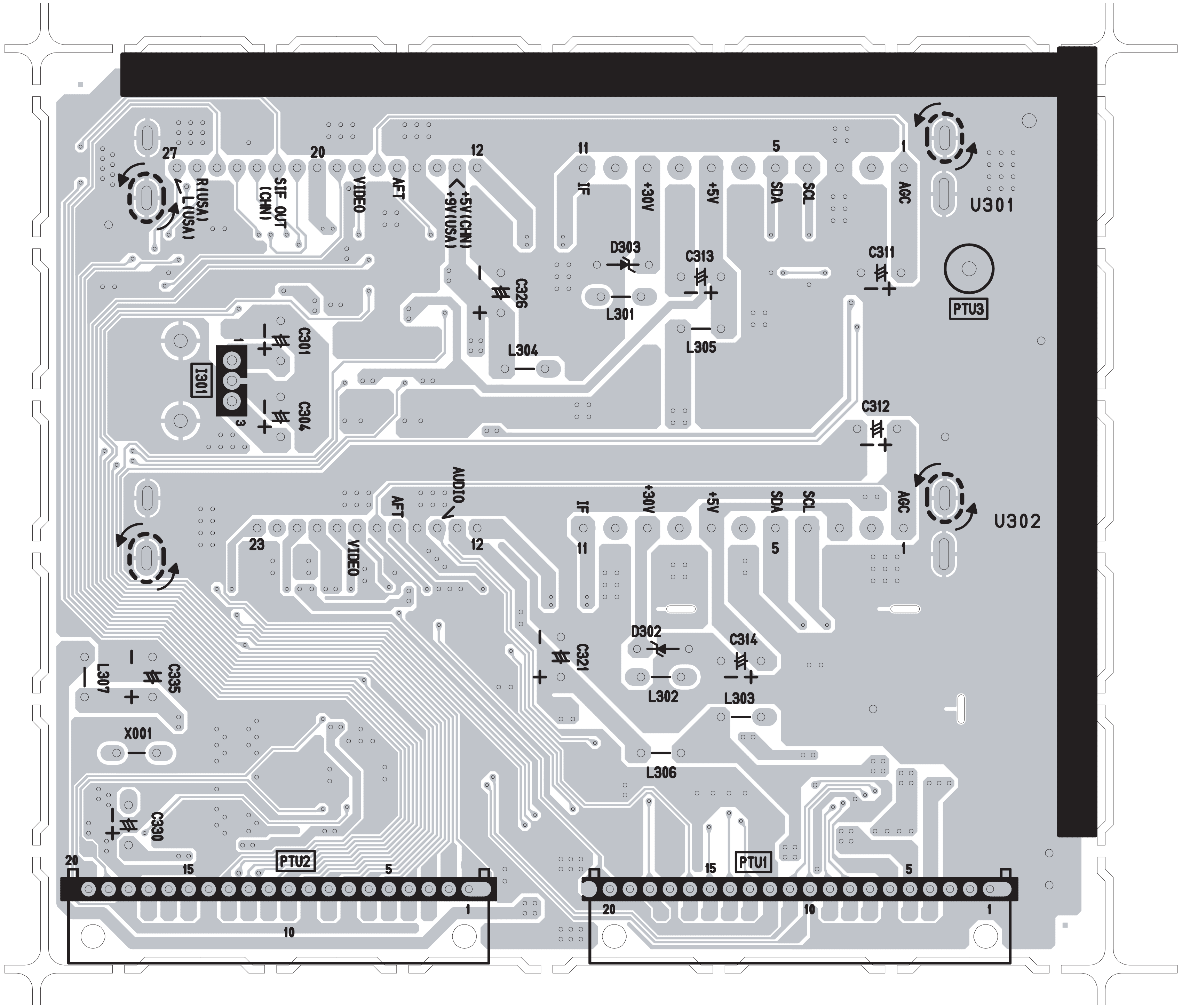
PRINTED CIRCUIT BOARD

TUNER - PART SIDE

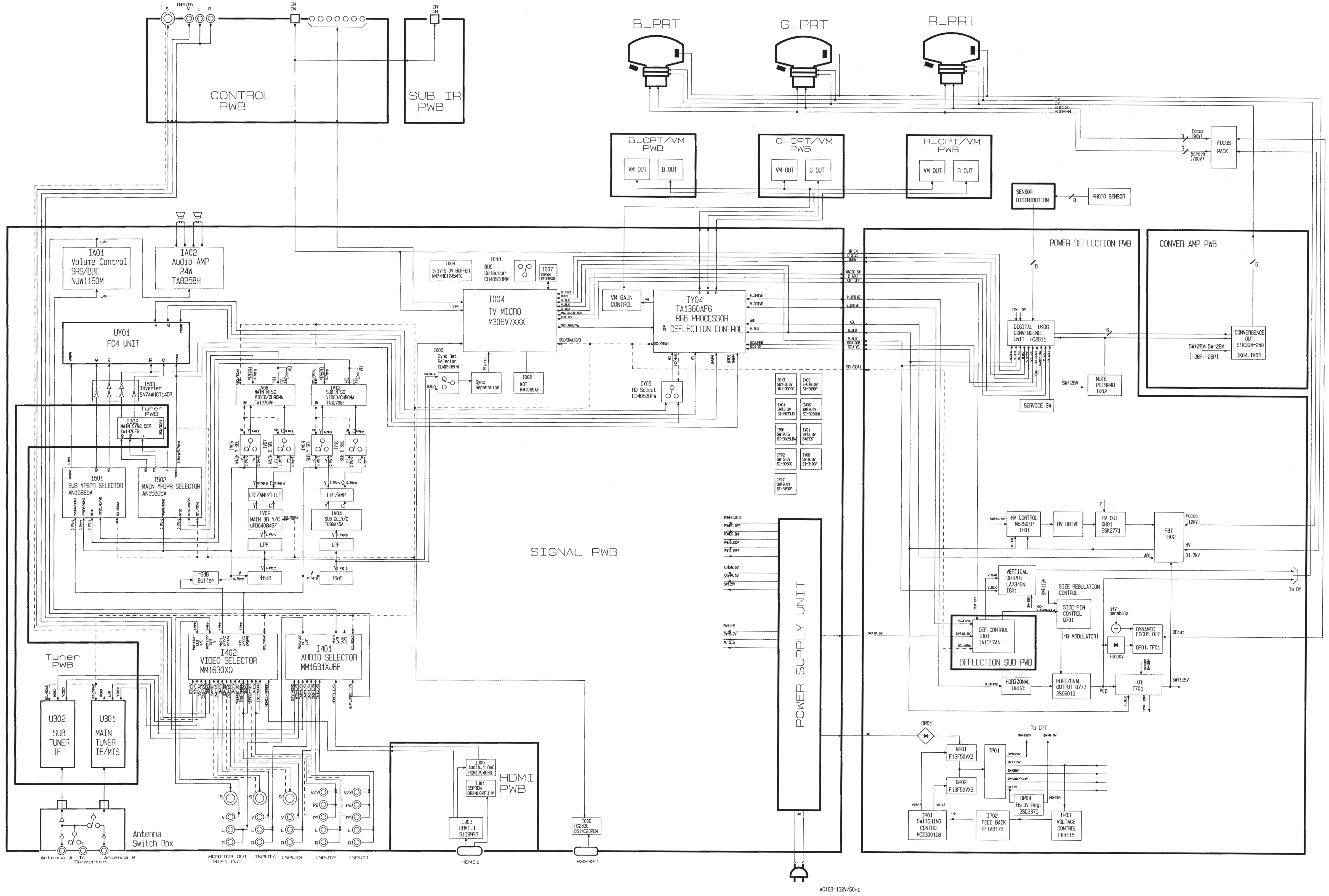

DP4X/LC4X/DP4M-TUNER P.W.B.
U301
R385
C309
C311
R314
Q301
R317
PTU3
R304
C307
R302
R305
C305
R303
C315
C313
L305
C318
D303
L301
R377
R375
R310
R311
R392
R393
L304
C326
R324
C327
Q305
C323
R328
R319
R321
Q304
R320
C320
R357
Q311
R350
R384
R332
R381
R335
R383
R373
R372
R379
R330
R358
C328
R353
Q313
C302
I301
C301
R339
R349
R336
R347
R354
R343
Q309
R351
R342
Q308
C304
N301
A B C D E F G H
1 2 4 8
1 2 4
1 2 3 4
C312
R391
R374
C310
F
JK08691-
U302
R334
C335
L307
R378
C324
R315
Q302
R318
Q307
C321
C316
C319
D302
R308
R306
C308
C306
C314
L302
L303
R376
R326
R322
R323
C325
Q306
L306
R390
R389
R313
R312
C317
R316
R329
R331
C329
R380
R382
Q312
R355
Q310
R356
R345
R348
R352
R344
R325
C322
Q303
R340
R327
I302
16
15
R363
R366
R365
C332
R364
R370
R371
C333
C334
C337
Q314
R368
R369
R367
30
1
X001
C336
R360
R359
C331
C330
R362
R361
R388
R394
R387
R386
PTU1
1
5
10
15
20
PTU2
1
5
10
15
20

PRINTED CIRCUIT BOARD

TUNER - PART SIDE


27
20
12
11
5
1
R(USA)
L(USA)
SIF_OUT
(CHN)
VIDEO
AFT
+5V(CHN)
+9V(USA)
IF
+30V
+5V
SDA
SCL
AGC
U301
D303
C313
C311
C326
L301
L305
L304
PTU3
C301
C304
J301
C312
AUDIO
AFT
IF
+30V
+5V
SDA
SCL
AGC
U302
23
VIDEO
12
11
5
1
D302
C314
C321
L302
L303
L306
C335
L307
X001
C330
PTU2
20
15
5
1
10
PTU1
15
5
20
10
1

BLOCK DIAGRAM


INPUT5
S V L R
IR IN
CONTROL PWB
SUB IR PWB
B_PRT
G_PRT
R_PRT
B_CPT/VM PWB
VM OUT
B OUT
G_CPT/VM PWB
VM OUT
G OUT
R_CPT/VM PWB
VM OUT
R OUT
FOCUS PACK
Focus (9KV)
Screen (700V)
SENSOR DISTRIBUTION
PHOTO SENSOR
IA01 Volume Control SRS/BBE NJW1160M
IA02 Audio AMP 24W TA8258H
I009 3.3V-5.0V BUFFER MM74HCT245MTC
I010 BUS Selector CD4053BPW
I007 EEPROM CAT24XC32
I004 TV MICRO M306V7XXX
IR
D SIZE
BUSY
H_BLK
V_BLK
D ADJ
MAGIC.SW.OUT
CUT OFF
OSD_RGB/Ys
SCL/SDA1/2/3
VM GAIN CONTROL
VM
IY04 TA1360AFG RGB PROCESSOR & DEFLECTION CONTROL
H_DRIVE
V_DRIVE
ABL
H_BLK
DCU_RGB
DCU YS
SCL/SDA1
I005 Sync Det. Selector CD4053BPW
MAIN_V
SUB_V
Sync Separation
Sync
I002 WDT MM1095AF
IY05 HD Select CD4053BPW
HD
FC/REAL
VD
YPBPR
1080i YPBPR
I013 SBY+3.3V TK1133CSC
I403 EPG+9.0V SI-3090F
I404 SW+3.3V SI-B033JD
I406 DM+9.0V SI-3090KM
IV01 SW+2.5V SI-3025LBA
IY01 SW+3.3V BA033T
IY02 SW+5.0V SI-3050C
IY06 SW+9.3V SI-3190F
UY01 FC4 UNIT
I503 Inverter SN74AHCT14DR
Tuner PWB
I302 MAIN SYNC SEP. TA1370FG
I501 SUB YPBPR SELECTOR AN15865A
I502 MAIN YPBPR SELECTOR AN15865A
IV08 MAIN NTSC VIDEO/CHROMA TA1270BF
IV12 SUB NTSC VIDEO/CHROMA TA1270BF
IV06 MAIN Y SEL
IV07 MAIN C SEL
IV09 SUB Y SEL
IV10 SUB C SEL
LPF/AMP/TILT
LPF/AMP
IV02 MAIN 3D_Y/C uPD64084GF
IV04 SUB 2L_Y/C TC90A45A
LPF
-6dB Buffer
+6dB
SIGNAL PWB
POWER SUPPLY UNIT
I402 VIDEO SELECTOR MM1630XQ
I401 AUDIO SELECTOR MM1631XJBE
Tuner PWB
U302 SUB TUNER IF
U301 MAIN TUNER IF/MTS
Antenna Switch Box
Antenna A
To Converter
Antenna B
MONITOR OUT HiFi OUT
INPUT4
INPUT3
INPUT2
INPUT1
HDMI PWB
IJ05 Audio_1 DAC PCM1754DBQ
IJ01 EEPROM BR24L02FJ-W
IJ03 HDMI_1 SiI9993
HDMI1
I006 RC232C DS14C232CM
RS232C
AC108-132V/60Hz
POWER DEFLECTION PWB
CONVER AMP PWB
DIGITAL UKDG CONVERGENCE UNIT HC2611
+5V -5V
CONVERGENCE OUT STK394-250 IK04, IK05
SW+28V, SW-28V (+28P, -28P)
MUTE PST994D IK02
SW+28V
SERVICE SW
HV CONTROL M62501P IH01
HV DRIVE
HV OUT QH01 2SK2771
FBT TH02
Focus (12KV)
HV 31.7KV
ABL
VERTICAL OUTPUT LA7846N I601
To DY
SIZE REGULATION CONTROL
SIDE-PIN CONTROL Q701
(+B MODULATOR)
H+V parabola
DYNAMIC FOCUS OUT QF01, TF01
DFout
+1000V
DEF.CONTROL IB01 TA1317AN
DEFLECTION SUB PWB
HORIZONAL DRIVE
HORIZONAL OUTPUT Q777 2SC6012
Vcp
HOT T701
SW+115V
DP01
To CPT
QP01 F13F50VX3
QP02 F13F50VX3
TP01
QP04 +6.3V Reg. 2SD2375
HEATER
IP01 SWITCHING CONTROL MCZ3001DB
IP02 FEED BACK H11A817B
IP03 VOLTAGE CONTROL EK1115

WIRING DIAGRAM

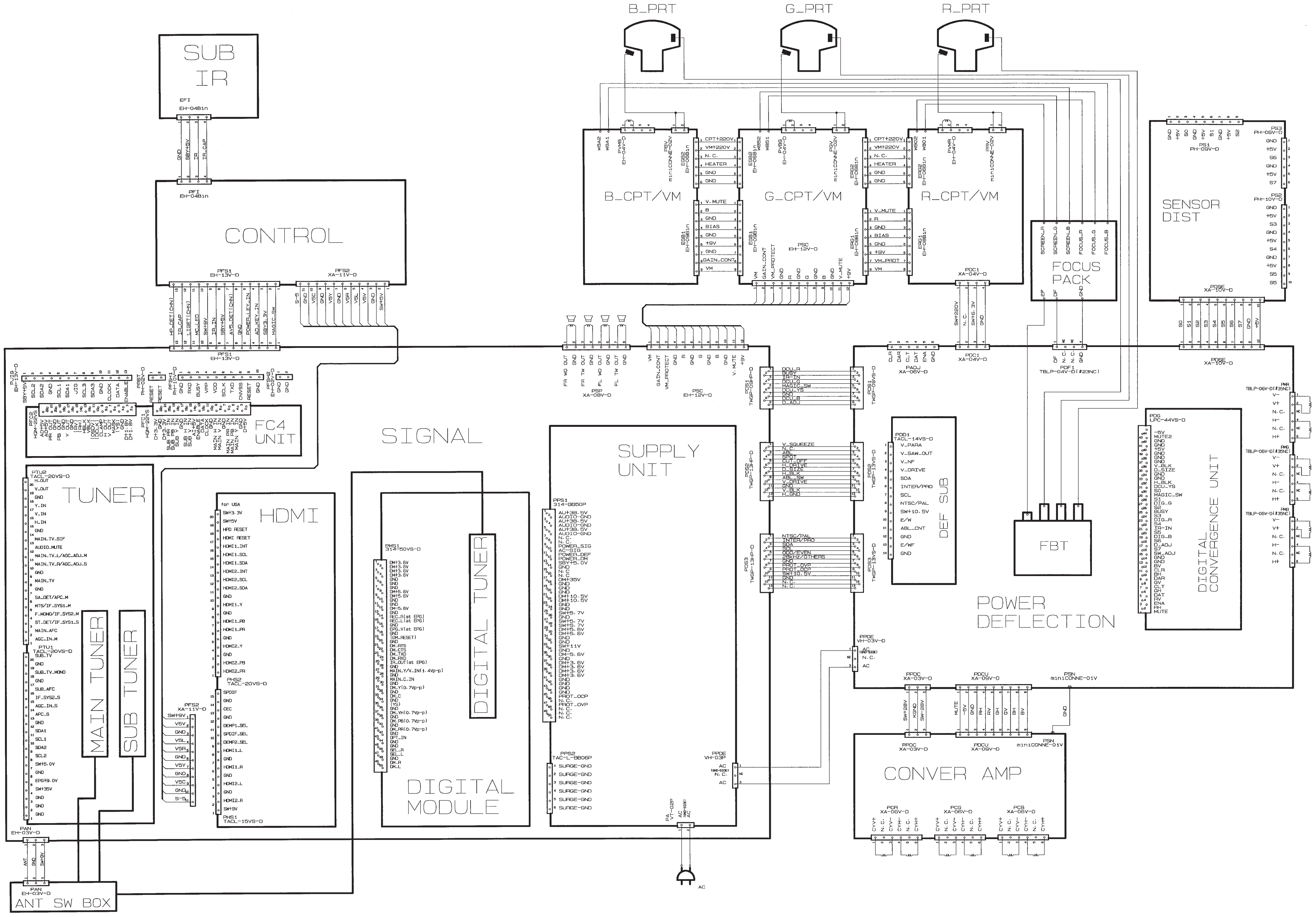
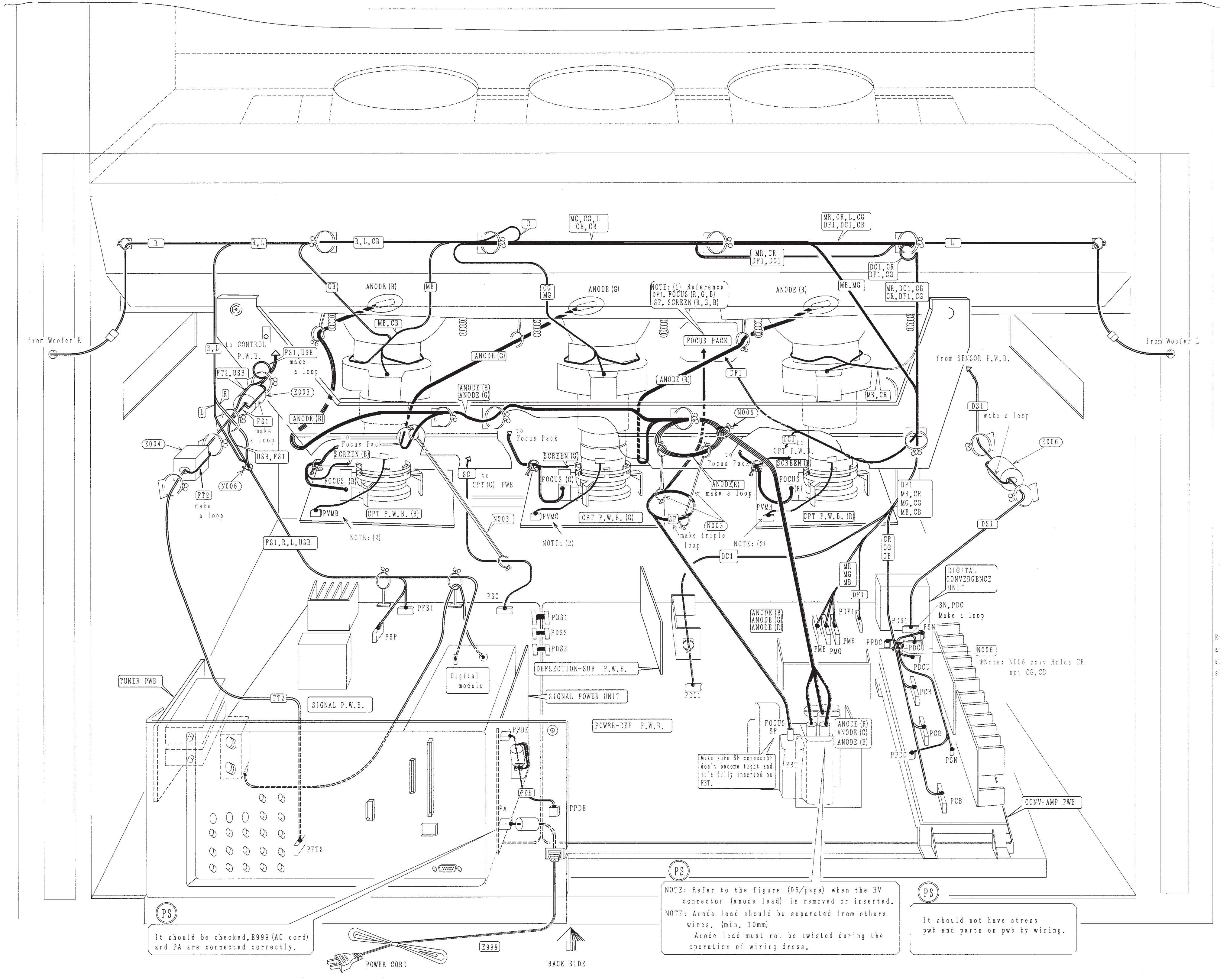

B_PRT
G_PRT
R_PRT
SUB IR
CONTROL
B_CPT/VM
G_CPT/VM
R_CPT/VM
SENSOR DIST
FOCUS PACK
FC4 UNIT
SIGNAL
TUNER
MAIN TUNER
SUB TUNER
HDMI
DIGITAL TUNER
DIGITAL MODULE
SUPPLY UNIT
DEF SUB
FBT
POWER DEFLECTION
DIGITAL CONVERGENCE UNIT
CONVER AMP
ANT SW BOX
AC

TABLE OF CONTENTS

CHASSIS WIRING DIAGRAM

DP47 CHASSIS WIRING DRAWING.


from Woofer R
from Woofer L
R
R,L
R,L,CB
R
MG,CG,L
CB,CB
MR,CR,L,CG
DF1,DC1,CB
MR,CR
DF1,DC1
DC1,CR
DF1,CG
L
CB
ANODE (B)
MB
CG
MG
ANODE (G)
NOTE: (1) Reference
DF1, FOCUS (R,G,B)
SF, SCREEN (R,G,B)
ANODE (R)
MB.MG
MR,DC1,CB
CR,DF1,CG
MB,CB
R,L
to CONTROL
P.W.B.
FS1,USB
make
a loop
FT2,USB
E003
ANODE (G)
FOCUS PACK
DF1
ANODE (R)
from SENSOR P.W.B.
MR,CR
R
L
FS1
make
a loop
ANODE (B)
ANODE (B)
ANODE (G)
N006
DS1
make a loop
E004
USB,FS1
to
Focus Pack
SCREEN (B)
to
Focus Pack
SCREEN (G)
DC1
to
CPT P.W.B.
to
Focus Pack
SCREEN (R)
E006
N006
FT2
make
a loop
FOCUS (B)
SC
to
CPT (G) PWB
FOCUS (G)
ANODE (R)
make a loop
FOCUS
(R)
DF1
MR,CR
MG,CG
MB,CB
PVMB
CPT P.W.B. (B)
N003
PVMG
CPT P.W.B. (G)
SF
N003
make triple
loop
PVMR
CPT P.W.B. (R)
DS1
FS1,R,L,USB
NOTE: (2)
NOTE: (2)
NOTE: (2)
DC1
CR
CG
CB
MR
MG
MB
DIGITAL
CONVERGENCE
UNIT
DF1
SN,PDC
Make a loop
PFS1
PSC
PDS1
PDS2
PDS3
PSP
ANODE (B)
ANODE (G)
ANODE (R)
PDF1
PDS1
PSN
PMB
PMG
PMR
PPDC
PDCU
N006
*Note: N006 only Holds CR
not CG,CB
PDCU
TUNER PWB
Digital
module
DEFLECTION-SUB P.W.B.
PDC1
FT2
SIGNAL P.W.B.
SIGNAL POWER UNIT
PCR
POWER-DEF P.W.B.
PPDE
FOCUS
SF
ANODE (R)
ANODE (G)
ANODE (B)
PCG
FBT
PPDC
PSN
PDE
PPDE
PA
PCB
CONV-AMP PWB
PFT2
PS
PS
PS
E999
POWER CORD
BACK SIDE

Make sure SF connector don't become tight and it's fully inserted on FBT.

It should be checked, E999 (AC cord) and PA are connected correctly.

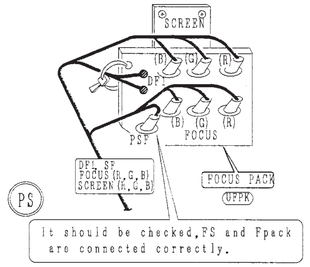
NOTE: Refer to the figure (05/page) when the HV connector (anode lead) is removed or inserted.

NOTE: Anode lead should be separated from others wires. (min. 10mm)
Anode lead must not be twisted during the operation of wiring dress.

It should not have stress pwb and parts on pwb by wiring.

NOTE: (1)

Refer to the figure below about assembly of FOCUS PACK leads.

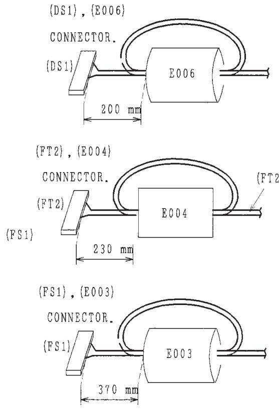

SCREEN
(B)
(G)
(R)
DF1
PSF
(B)
(G)
(R)
FOCUS
DF1, SF
FOCUS (R,G,B)
SCREEN (R,G,B)
FOCUS PACK
UFPK
PS

It should be checked, FS and Fpack are connected correctly.

NOTE: (2)

Connector "VMR", "VMG" and "VMB" should be connected before CPT P.W.B is inserted to PRT.

NOTE: (3) PREPARATION JOB.


(DS1), (E006)
CONNECTOR.
(DS1)
E006
200 mm
(FT2), (E004)
CONNECTOR.
(FT2)
(FS1)
E004
(FT2)
230 mm
(FS1), (E003)
CONNECTOR.
(FS1)
E003
370 mm

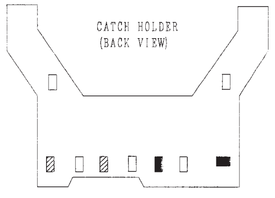
NOTE: (4)

Adjust the slack of a speaker line by the speaker side.

NOTE: (5)

Even if 300 g power is applied to a wire and and wiring dress style is changed, all wires should not be contact to a high temperature, sharp edge and high voltage parts.

NOTE: (6)


CATCH HOLDER
(BACK VIEW)

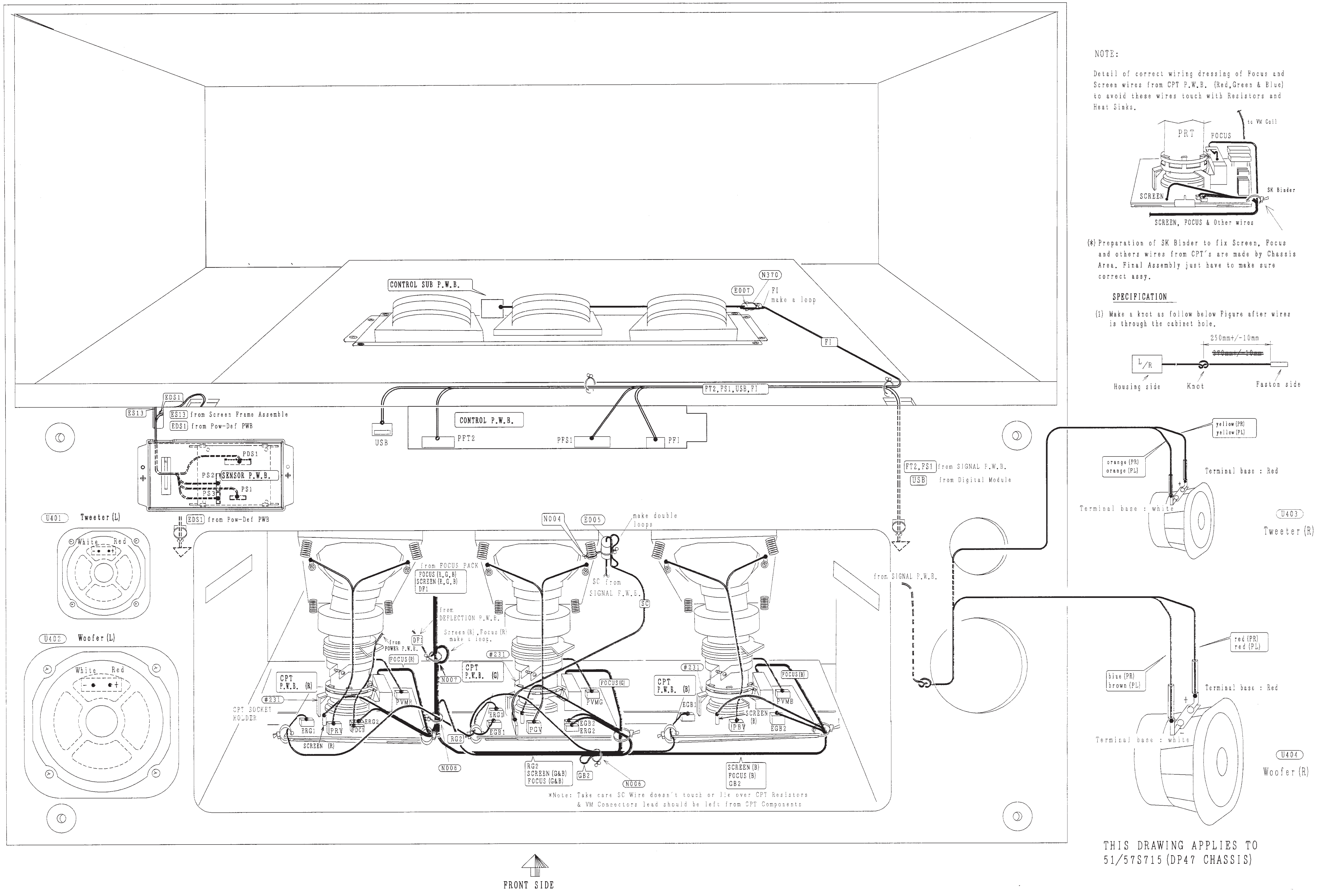
▨ MARK SHOULD BE APPLY A LEAD CLAMP (N310)
(LEAD CLAMP PARTS No.3875511)

▮ MARK SHOULD BE APPLY A LEAD CLAMP (N008)
(LEAD CLAMP PARTS No.3813121)

THIS DRAWING APPLIES TO

CHASSIS WIRING DIAGRAM

DP47 CHASS WIRING DRAWING.


CONTROL SUB P.W.B.
N370
E007
FI
make a loop
FI
FT2,FS1,USB,FI
EDS1
ES13
ES13 from Screen Frame Assemble
EDS1 from Pow-Def PWB
CONTROL P.W.B.
USB
PFT2
PFS1
PFI
PDS1
PS2
SENSOR P.W.B.
PS3
PS1
EDS1 from Pow-Def PWB
FT2,FS1 from SIGNAL P.W.B.
USB from Digital Module
U401
Tweeter (L)
White
Red
U402
Woofer (L)
White
Red
N004
E005
make double loops
from FOCUS PACK
FOCUS (R,G,B)
SCREEN (R,G,B)
DF1
SC from SIGNAL P.W.B.
SC
from DEFLECTION P.W.B.
DF1
Screen (R), Focus (R) make a loop.
from POWER P.W.B.
FOCUS (R)
N007
#231
CPT P.W.B. (R)
CPT P.W.B. (G)
CPT P.W.B. (B)
#231
#231
CPT SOCKET HOLDER
PVMR
PVMG
PVMB
FOCUS (G)
FOCUS (B)
ERG1
PRV
PDC1
ERG2
SCREEN (R)
RG2
ERG1
EGB1
PGV
EGB2
ERG2
EGB1
SCREEN (B)
PBV
EGB2
N006
RG2
SCREEN (G&B)
FOCUS (G&B)
GB2
N006
SCREEN (B)
FOCUS (B)
GB2
from SIGNAL P.W.B.
PRT
FOCUS
to VM Coil
SK Binder
SCREEN
SCREEN, FOCUS & Other wires
250mm+/-10mm
~~370mm+/-10mm~~
L/R
Housing side
Knot
Faston side
yellow (PR)
yellow (PL)
orange (PR)
orange (PL)
Terminal base : Red
Terminal base : white
U403
Tweeter (R)
red (PR)
red (PL)
blue (PR)
brown (PL)
Terminal base : Red
Terminal base : white
U404
Woofer (R)
FRONT SIDE

*Note: Take care SC Wire doesn´t touch or lie over CPT Resistors & VM Connectors lead should be left from CPT Components

NOTE:

Detail of correct wiring dressing of Focus and Screen wires from CPT P.W.B. (Red,Green & Blue) to avoid these wires touch with Resistors and Heat Sinks.

(*) Preparation of SK Binder to fix Screen, Focus and others wires from CPT´s are made by Chassis Area. Final Assembly just have to make sure correct assy.

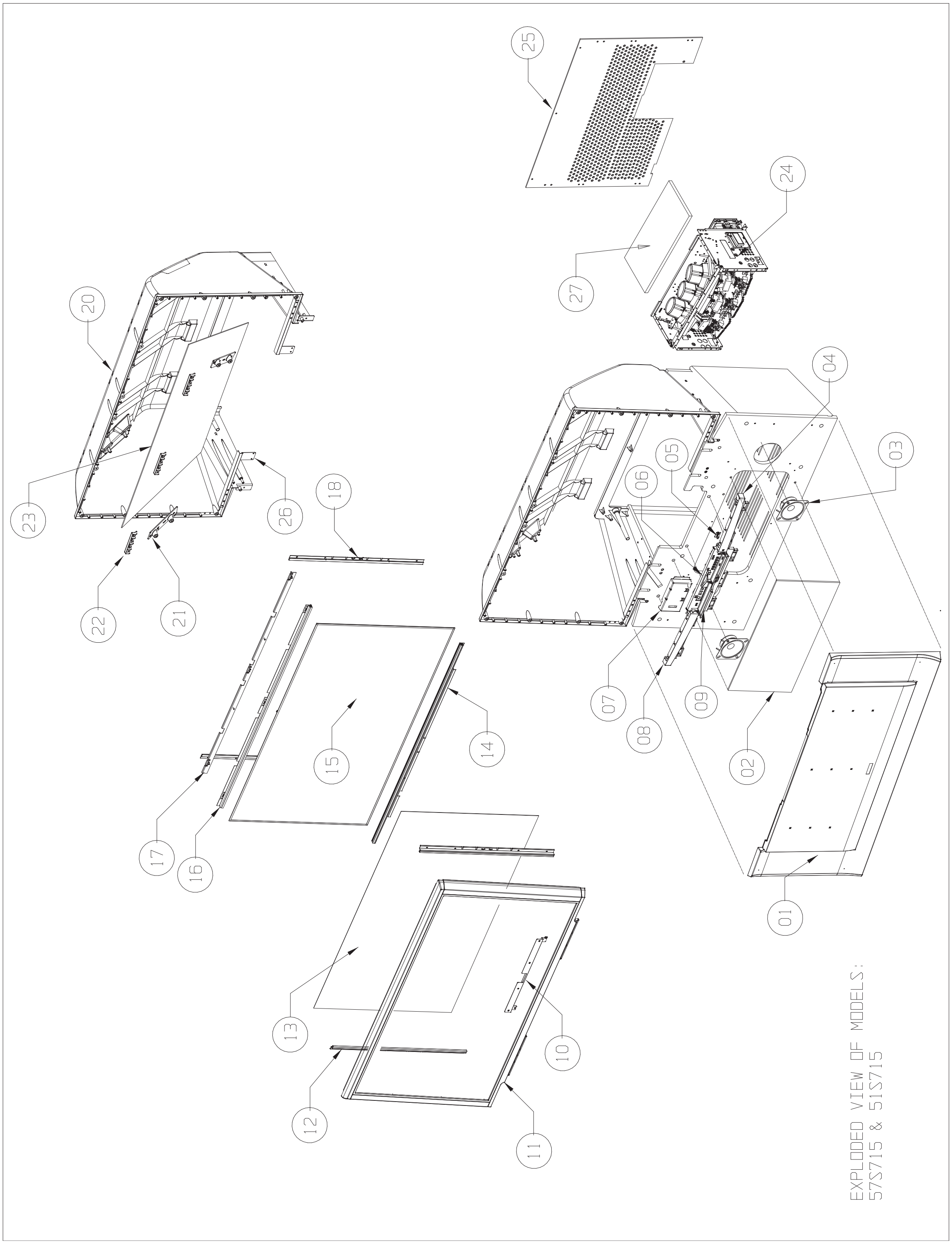
SPECIFICATION

(1) Make a knot as follow below Figure after wires is through the cabinet hole.

THIS DRAWING APPLIES TO
51/57S715 (DP47 CHASSIS)

EXPLODED VIEW

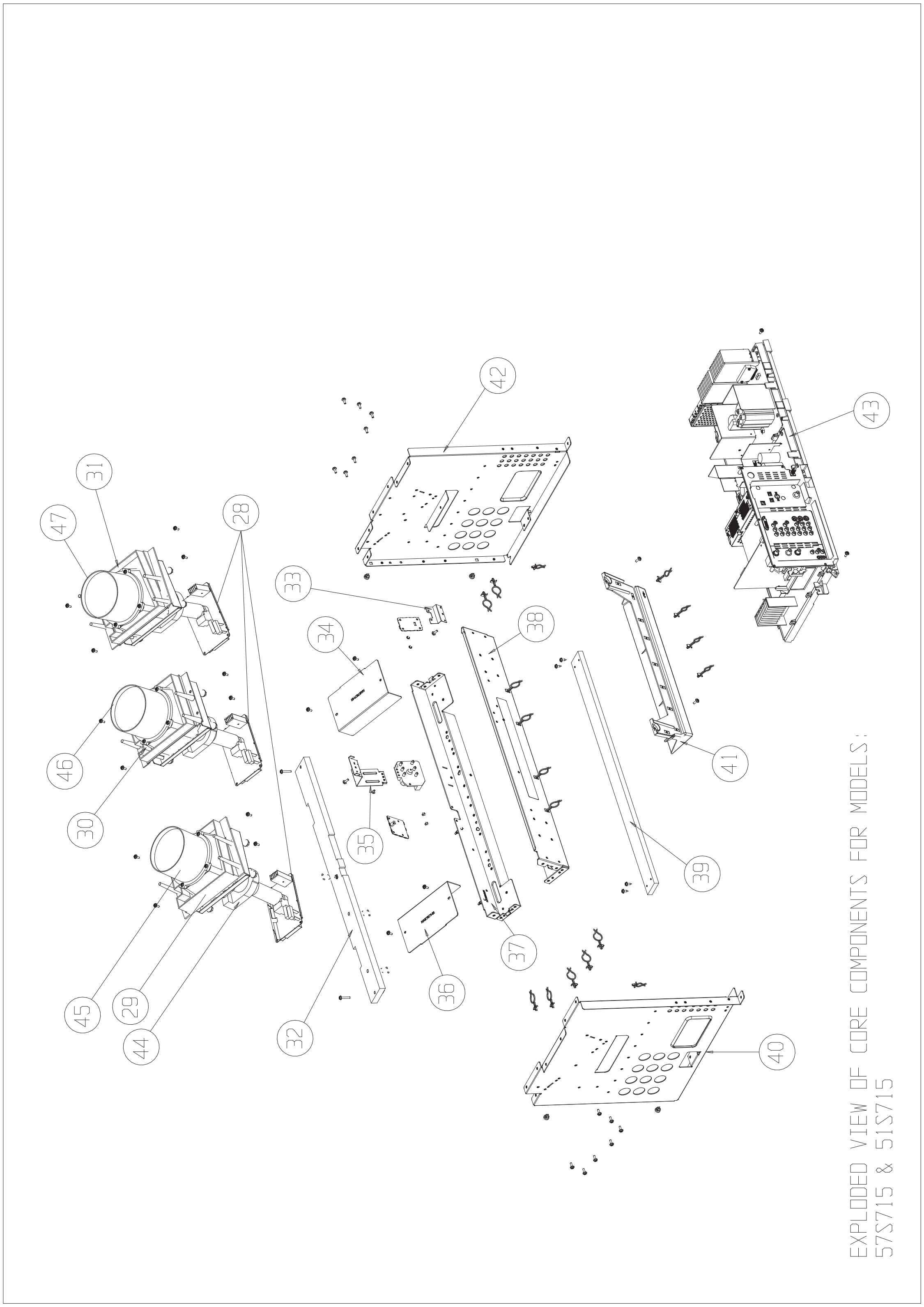
51/57S715 Drawing 1


25
24
27
20
04
03
05
06
23
26
18
22
21
07
08
09
02
14
15
17
16
01
13
10
12
11
EXPLODED VIEW OF MODELS:
57S715 & 51S715

NOTE: Some parts may appear different than those shown in the exploded view. When ordering, refer to the replacement parts list for the correct part number. The circled numbers correspond to the parts list shown on pages 154 and 155.

EXPLODED VIEW

51/57S715 Drawing 2


42
43
31
47
28
33
34
38
41
46
30
35
39
37
36
45
29
44
32
40
EXPLODED VIEW OF CORE COMPONENTS FOR MODELS:
57S715 & 51S715

NOTE: Some parts may appear different than those shown in the exploded view. When ordering, refer to the replacement parts list for the correct part number. The circled numbers correspond to the parts list shown on pages 154 and 155.

EXPLODED VIEW PARTS LIST

Model 51S715

No	Part No	Description	Q
1	PH34081	SPEAKER GRILL ASSY 51S715	1
2	55010267	FRONT BOARD 2002	1
3	G 91 K012	SPEAKER SP-13CM	2
4	PH34073	DECO PANEL 57" (R) F	1
5	PH34231	IR LENS DP4X	1
6	PH34185	CONTROL PANEL S715	1
7	NJ09841	PWB COVER	1
8	PH34075	DECO PANEL 57" (L) F	1
9	PH34173	COTROL DOOR_S VERSION D	1
10	NA72182	METAL SUPPORT S	1
11	PH33961	SCREEN FRAME 51"	1
12	PH34051	SCREEN HOLDER 51" (SIDE)	2
13	KR03261	ULTRASHIELD HC 51W	1
14	PH35321	51" BOTTOM SCREEN HOLDER (REV)	1
15	KR03142	DP4X SCREEN ASSY 51S	1
16	PH34031	SCREEN HOLDER 51" (TOP)	1
17	NA72451	51" TOP SCREEN BRACKET	1
18	NJ20181	51" SIDE SCREEN HOLDER B	2
19	NA73894	51" L-BRACKET (RIGHT)	1
20	QD38061	BACK COVER 51"	1
21	NJ09156	SIDE MIRROR HOLDER L	1
21A	NJ09155	SIDE MIRROR HOLDER R	1
22	NJ09161	TOP MIRROR HOLDER	3
23	KS07995	'04 51" MODELS MIRROR GLASS	1
24	UE23331	51S715 CORE BLOCK ASSY	1
25	H512334	LOWER REAR B. DP4X	1
26	NA73893	51" L-BRACKET (LEFT)	1
27	33020116	BARRIER BOARD ASSY S715	1
28	JT24501	DP47CPT CONTROL PWB ASSY	1
29	UE23391	SCB-MAB50 LENS CRT BLOCK ASSY (R)	1
30	UE23392	SCB-MAB50 LENS CRT BLOCK ASSY (G)	1
31	UE23393	SCB-MAB50 LENS CRT BLOCK ASSY (B)	1
32	NM00941	CHASSIS SUPPORT 2002	1
33	NA57181	IR PWB FIX MTL DP2X	1
34	NA57578	LC METAL 2002-57 SIDE	1
35	NA61121	FOCUS BOX FIX METAL 43(4:3) SECC20/20Et=1.2	1
36	NA57578	LC METAL 2002-57 SIDE	1
37	NA71022	LC METAL 2004-20-6 FRONT	1
38	NA71031	LC METAL 2004-20.6 REAR	1
39	NM00941	CHASSIS SUPPORT 2002	1
40	NA71041	SIDE METAL 2004-20.6 RIGHT	1
41	NJ06582	DRIPPING HOLDER DP4X	1
42	NA71042	SIDE METAL 2004-20.6 LEFT	1
43	UE23121	DP4X CHASSIS ASY	1
44	see page 178	DEFLECTION YOKE	3
45	KQ02271K	SCB LENS SASS RG	1
46	KQ02271K	SCB LENS SASS RG	1
47	KQ02272K	SCB LENS SASS B	1

NOTE : In part number showed on item 28, is included the following PWB assy, (control PWB, IR PWB and PRT PWB (R, G & B)).

NOTE: The PRT Assembly (Item 18, 19, 20) comes with the Yoke Assembly but does not include the CPT board and the LENS assembly.

EXPLODED VIEW PARTS LIST

Model 57S715

No	Part No	Description	Q
1	PH33992	57S715 SPEAKER GRILL	1
2	55010267	FRONT BOARD 2002	1
3	GK00911	SPEAKER SP-5CM	2
4	PH34063	DECO RAIL 57S_RIGHT_D	1
5	PH34231	IR LENS DP4X	1
6	PH34185	CONTROL PANEL S715	1
7	NJ09841	PWB COVER	1
8	PH34064	DECO RAIL 57S_LEFT_D	1
9	PH34173	COTROL DOOR_S VERSION	1
10	NA72182	METAL SUPPORT S	1
11	PH33971	SCREEN FRAME 57"	1
12	PH34052	SCREEN HOLDER 57" (SIDE)	2
13	KR03265	ULTRASHIEL HC 57W	1
14	PH35322	57" BOTTOM SCREEN HOLDER	1
15	KR03143	DP4X 57S SCREEN ASSY	1
16	PH34032	SCREEN HOLDER 57" (TOP)	1
17	NA72452	57" TOP SCREEN BRACKET	1
18	NJ20182	57" SIDE SCREEN HOLDER B	2
19	NA73902	57" L-BRACKET (RIGHT)	1
20	QD38051	BACK COVER 57"	1
21	NJ09156	SIDE MIRROR HOLDER L	1
21A	NJ09155	SIDE MIRROR HOLDER R	1
22	NJ09161	TOP MIRROR HOLDER	5
23	KS07993	'04 57" MODELS MIRROR GLASS	1
24	UE23332	577715 CORE BLOCK ASSY	1
25	H512334	LOWER REAR B. DP4X	1
26	NA73901	57" L-BRACKET (LEFT)	1
27	33020116	BARRIER BOARD ASSY S715	1
28	JT24501	DP47 CPT CONTROL PWB ASY	1
29	UE23394	SCC-MAB60 LENS CRT BLOCK ASSY (R)	1
30	UE23395	SCC-MAB60 LENS CRT BLOCK ASSY (G)	1
31	UE23396	SCC-MAB60 LENS CRT BLOCK ASSY (B)	1
32	NM00941	CHASSIS SUPPORT 2002	1
33	NA57181	IR PWB FIX MTL DP2X	1
34	NA57578	LC METAL 2002-57 SIDE	1
35	NA61121	FOCUS BOX FIX METAL 43(4:3) SECC20/20Et=1.2	1
36	NA57578	LC METAL 2002-57 SIDE	1
37	NA71022	LC METAL 2004-20-6 FRONT	1
38	NA71031	LC METAL 2004-20.6 REAR	1
39	NM00941	CHASSIS SUPPORT 2002	1
40	NA71041	SIDE METAL 2004-20.6 RIGHT	1
41	NJ06582	DRIPPING HOLDER DP4X	1
42	NA71042	SIDE METAL 2004-20.6 LEFT	1
43	UE23121	DP4X CHASSIS ASY	1
44	see page 178	DEFLECTION YOKE	3
45	KQ02641K	SCC LENS SASSY RG	1
46	KQ02641K	SCC LENS SASSY RG	1
47	KQ02642K	SCC LENS SASSY B	1

NOTE : In part number showed on item 28, is included the following PWB assy, (control PWB, IR PWB and PRT PWB (R, G & B)).

NOTE: The PRT Assembly (Item 18, 19, 20) comes with the Yoke Assembly but does not include the CPT board and the LENS assembly.

REPLACEMENT PARTS LIST

PRODUCT SERVICE NOTE: Components marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

ABBREVIATIONS

Capacitors:
- AL: Aluminum Electrolytic
- CD: Ceramic Disc
- EL: Electrolitic
- PF: Polyester Film
- PP: Polypropylene
- PL: Plastic
- TA: Tantalum
- PR: Paper
- TM: Trimmer
- MC: Mylar

Resistors:
- CF: Carbon Film
- CC: Carbon Composition
- MF: Metal Oxide
- VR: Variable Resistor
- WW: Wire Wound
- FR: Fuse Resistor
- MG: Metal Grazed

Semiconductors:
- TR: Transistor
- DI: Diode
- ZD: Zener Diode
- VA: Varistor
- TH: Termistor
- IC: Integrated Circuit

The second number in the component (Symbol) designates the Circuit Location.
The following identifies these Circuits.

3	Tuners
4	A/V Selector Signal 2 of 5
5	Y Pr/Pb Signal 3 of 5
6	Vertical Deflection
7	Horizontal Drive & Side Pin Deflection
8	CRT Out
A	Audio Signal 5 of 5
B	Sub Deflection
E	Velocity Modulation CRT PWB
F	Dynamic Focus Deflection
H	Horizontal Deflection High Voltage
J	HDMI
K	Convergence
L	Sensor
M	Front Control
N	Sweep Loss Deflection
P	Power Supply
V, W, X	3D Y/C Signal 5 of 5
0, 1, 2	Microprocessor Signal 1 of 5
R, G, B	Out Signal 5 of 5 Z

SYMBOL NO.	PART NO.	PART DESCRIPTION
		CAPACITORS
C001	0800326R	CAP.-ELECTRO. 100UF-M 16V
C002	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
C005	0800326R	CAP.-ELECTRO. 100UF-M 16V
C006	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
C007	0800326R	CAP.-ELECTRO. 100UF-M 16V
C008	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
C009	0893213R	CAP1608CHIP 2200PFKB 50V TAPE
C011	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
C011	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
C013	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
C014	0893208R	CAP 1608CHIP 1000PFKB 50V TAPE
C018	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
C018	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
C019	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
C020	0893205R	CAP 1608CHIP 560PFKB 50V TAPE
C024	0800326R	CAP.-ELECTRO. 100UF-M 16V
C025	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
C026	0800279R	CAP.-ELECTORO. 1.0UF-M(SMG) 50V
C027	0800326R	CAP.-ELECTRO. 100UF-M 16V
C028	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
C029	0893205R	CAP 1608CHIP 560PFKB 50V TAPE
C030	0893204R	CAP 1608CHIP 470PFKB 50V TAPE
C031	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
C032	0893208R	CAP 1608CHIP 1000PFKB 50V TAPE
C033	0800326R	CAP.-ELECTRO. 100UF-M 16V
C034	0800282R	CAP.-ELECTORO. 2.2UF-M(SMG) 50V
C035	0800279R	CAP.-ELECTORO. 1.0UF-M(SMG) 50V
C036	0893131R	CAP 1608CHIP 220PFJCH 50V TAPE
C037	0893204R	CAP 1608CHIP 470PFKB 50V TAPE
C038	0893208R	CAP 1608CHIP 1000PFKB 50V TAPE
C039	0800282R	CAP.-ELECTORO. 2.2UF-M(SMG) 50V
C040	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
C041	0800326R	CAP.-ELECTRO. 100UF-M 16V
C042	0893131R	CAP 1608CHIP 220PFJCH 50V TAPE
C043	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
C044	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
C046	0893208R	CAP 1608CHIP 1000PFKB 50V TAPE

BACK TO TABLE OF CONTENTS

PRODUCT SERVICE NOTE: Components marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
C048	0800303R	CAP.-ELECTRO. 22UF-M 50V	C430	0800352R	CAP.-ELECTRO.470UF 10V
C050	0800326R	CAP.-ELECTRO. 100UF-M 16V	C431	0800352R	CAP.-ELECTRO.470UF 10V
C051	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	C432	AA01123R	CCC105K10-B-16CT
C052	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C433	AA00966R	CERAMIC CAPACITOR(4.7UF 6.3V)
C054	0893104R	CAP 1608CHIP 2PFCCK 50V TAPE	C434	AA00966R	CERAMIC CAPACITOR(4.7UF 6.3V)
C056	0893245R	CAP 1608CHIP 15000PFKB 50V TAPE	C435	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
C058	0893205R	CAP 1608CHIP 560PFKB 50V TAPE	C436	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
C059	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	C437	AA01123R	CCC105K10-B-16CT
C060	AA01144R	CERAMIC CAP. 1608-B 1.0UF 16V	C438	0800303R	CAP.-ELECTRO. 22UF-M 50V
C061	AA01144R	CERAMIC CAP. 1608-B 1.0UF 16V	C439	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
C062	AA01111R	CERAMIC CAPACITOR(1.0UF 6.3V)	C441	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
C063	AA01111R	CERAMIC CAPACITOR(1.0UF 6.3V)	C442	AA01123R	CCC105K10-B-16CT
C064	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C443	AA01123R	CCC105K10-B-16CT
C065	0893128R	CAP 1608CHIP 150PFJCH 50V TAPE	C444	AA01123R	CCC105K10-B-16CT
C066	0800326R	CAP.-ELECTRO. 100UF-M 16V	C445	AA01123R	CCC105K10-B-16CT
C067	0893126R	CAP 1608CHIP 100PFJCH 50V TAPE	C446	AA01123R	CCC105K10-B-16CT
C070	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C447	AA01123R	CCC105K10-B-16CT
C071	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C448	AA01123R	CCC105K10-B-16CT
C072	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C449	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
C075	0800326R	CAP.-ELECTRO. 100UF-M 16V	C450	0800352R	CAP.-ELECTRO.470UF 10V
C080	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C454	AA01123R	CCC105K10-B-16CT
C081	AA01101R	CERAMIC CAPACITOR(1UF 10V-F)	C455	AA01123R	CCC105K10-B-16CT
C085	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C456	AA01123R	CCC105K10-B-16CT
C086	0800326R	CAP.-ELECTRO. 100UF-M 16V	C461	AA00966R	CERAMIC CAPACITOR(4.7UF 6.3V)
C089	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C462	AA00966R	CERAMIC CAPACITOR(4.7UF 6.3V)
C090	0800326R	CAP.-ELECTRO. 100UF-M 16V	C463	AA01123R	CCC105K10-B-16CT
C092	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C464	AA01123R	CCC105K10-B-16CT
C309	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	C465	AA01123R	CCC105K10-B-16CT
C310	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	C466	AA01123R	CCC105K10-B-16CT
C313	0800352R	CAP.-ELECTRO.470UF 10V	C467	AA01123R	CCC105K10-B-16CT
C314	0800352R	CAP.-ELECTRO.470UF 10V	C468	AA01123R	CCC105K10-B-16CT
C315	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	C469	AA01123R	CCC105K10-B-16CT
C316	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	C470	AA01123R	CCC105K10-B-16CT
C317	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	C471	AA01123R	CCC105K10-B-16CT
C318	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	C472	AA01123R	CCC105K10-B-16CT
C319	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	C475	AA01123R	CCC105K10-B-16CT
C320	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	C476	AA01123R	CCC105K10-B-16CT
C322	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	C477	AA01123R	CCC105K10-B-16CT
C323	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	C478	AA01123R	CCC105K10-B-16CT
C325	0893247R	CAP.CHIP-CERAMIC 18000PF 50V TAPE	C479	AA01123R	CCC105K10-B-16CT
C326	0800352R	CAP.-ELECTRO.470UF 10V	C480	AA01123R	CCC105K10-B-16CT
C327	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	C481	0800303R	CAP.-ELECTRO. 22UF-M 50V
C330	0800282R	CAP.-ELECTORO. 2.2UF-M(SMG) 50V	C482	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
C331	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	C484	AA01123R	CCC105K10-B-16CT
C334	AA01123R	CCC105K10-B-16CT	C485	AA01123R	CCC105K10-B-16CT
C335	0800359R	CAP.-ELECTRO. 1000UF-M 10V	C486	AA01123R	CCC105K10-B-16CT
C336	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)	C487	AA01123R	CCC105K10-B-16CT
C337	0893126R	CAP 1608CHIP 100PFJCH 50V TAPE	C488	0800326R	CAP.-ELECTRO. 100UF-M 16V
C401	0800326R	CAP.-ELECTRO. 100UF-M 16V	C490	AL01849R	1000UF 16V AL. ELECTROLYTIC CAPACITOR
C402	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C492	0800352R	CAP.-ELECTRO.470UF 10V
C403	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C493	0893208R	CAP 1608CHIP 1000PFKB 50V TAPE
C404	0800326R	CAP.-ELECTRO. 100UF-M 16V	C494	AL01833R	1000UF 6.3V AL. ELECTROLYTIC CAPACITOR
C405	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V	C495	AL01833R	1000UF 6.3V AL. ELECTROLYTIC CAPACITOR
C406	AA01123R	CCC105K10-B-16CT	C496	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
C407	AA01123R	CCC105K10-B-16CT	C4A2	AA00966R	CERAMIC CAPACITOR(4.7UF 6.3V)
C408	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C4A3	AA00966R	CERAMIC CAPACITOR(4.7UF 6.3V)
C409	AA01123R	CCC105K10-B-16CT	C4A4	AA00966R	CERAMIC CAPACITOR(4.7UF 6.3V)
C410	AA01123R	CCC105K10-B-16CT	C4A5	AA00966R	CERAMIC CAPACITOR(4.7UF 6.3V)
C411	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C4A6	AA01123R	CCC105K10-B-16CT
C412	AA01123R	CCC105K10-B-16CT	C4A7	0800352R	CAP.-ELECTRO.470UF 10V
C413	AA01123R	CCC105K10-B-16CT	C4A8	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
C414	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C4A9	0800326R	CAP.-ELECTRO. 100UF-M 16V
C415	0800326R	CAP.-ELECTRO. 100UF-M 16V	C4C2	0893114R	CAP 1608CHIP 12PFJCH 50V TAPE
C416	0893239R	CAP 1608CHIP 10000PFZF 50V TAPE	C4C3	0893114R	CAP 1608CHIP 12PFJCH 50V TAPE
C417	AA01123R	CCC105K10-B-16CT	C4C4	0893114R	CAP 1608CHIP 12PFJCH 50V TAPE
C418	AA01123R	CCC105K10-B-16CT	C501	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)
C420	AA01123R	CCC105K10-B-16CT	C502	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)
C421	AA01123R	CCC105K10-B-16CT	C503	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)
C422	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C508	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)
C423	AA01123R	CCC105K10-B-16CT	C509	AA01144R	CERAMIC CAP. 1608-B 1.0UF 16V
C424	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C510	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)
C426	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C511	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)
C427	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	C512	AA01802R	CCC103K50-B-16CTMCH18
C428	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C513	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)
C429	AA01123R	CCC105K10-B-16CT	C514	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
C515	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)	C802	0880044R	CAP.-POLYESTER 0.01UF-KEB 50V
C516	AA01802R	CCC103K50-B-16CTMCH18	C803	0800279R	CAP.-ELECTORO. 1.0UF-M(SMG) 50V
C517	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)	C804	0299622F	CAP.-POLYPROPYLENE FILM 0.01UF-J 630V
C518	AA01101R	CERAMIC CAPACITOR(1UF 10V-F)	C805	AL00031R	CAP.-ELECTORO. 33UF-M 250V
C519	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)	C807	0800352R	CAP.-ELECTRO.470UF 10V
C521	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)	C808	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
C523	0893188R	CERAMIC CAPACITOR(47000PF 16V)	C812	AJ00559F	CC-222K202YBDF10
C524	0800288R	CAP.-ELECTRO. 4.7UF-M(SMG) 50V	C813	AL00025R	CAP.ALMI 2.2UF250V
C525	0800326R	CAP.-ELECTRO. 100UF-M 16V	C814	0800326R	CAP.-ELECTRO. 100UF-M 16V
C526	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	C817	0800326R	CAP.-ELECTRO. 100UF-M 16V
C527	0893184R	CERAMIC CAPACITOR(22000PF 16V)	C851	0890076R	CAP.CERAMIC 150PF-K 50V
C528	0800326R	CAP.-ELECTRO. 100UF-M 16V	C852	0880044R	CAP.-POLYESTER 0.01UF-KEB 50V
C529	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	C853	0800279R	CAP.-ELECTORO. 1.0UF-M(SMG) 50V
C537	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)	C854	AL00031R	CAP.-ELECTORO. 33UF-M 250V
C538	AA01144R	CERAMIC CAP. 1608-B 1.0UF 16V	C857	0800352R	CAP.-ELECTRO.470UF 10V
C539	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)	C858	0880194R	CAP.-POLYESTER 0.1UF-J 50V
C540	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)	C862	AJ00559F	CC-222K202YBDF10
C541	AA01802R	CCC103K50-B-16CTMCH18	C863	AL00025R	CAP.ALMI 2.2UF250V
C542	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)	C871	0800326R	CAP.-ELECTRO. 100UF-M 16V
C543	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)	C872	0800326R	CAP.-ELECTRO. 100UF-M 16V
C544	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)	C8A1	0890077R	CAP.-CERAMIC 180PF-K 50V
C545	AA01802R	CCC103K50-B-16CTMCH18	C8A2	0880044R	CAP.-POLYESTER 0.01UF-KEB 50V
C546	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)	C8A3	0800279R	CAP.-ELECTORO. 1.0UF-M(SMG) 50V
C547	AA01101R	CERAMIC CAPACITOR(1UF 10V-F)	C8A4	AL00031R	CAP.-ELECTORO. 33UF-M 250V
C548	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)	C8A7	0800352R	CAP.-ELECTRO.470UF 10V
C550	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)	C8A8	0880194R	CAP.-POLYESTER 0.1UF-J 50V
C552	0893188R	CERAMIC CAPACITOR(47000PF 16V)	C8A9	0800352R	CAP.-ELECTRO.470UF 10V
C553	0800288R	CAP.-ELECTRO. 4.7UF-M(SMG) 50V	C8C2	AJ00559F	CC-222K202YBDF10
C554	0800326R	CAP.-ELECTRO. 100UF-M 16V	C8C3	AL00025R	CAP.ALMI 2.2UF250V
C555	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	C8C5	0800326R	CAP.-ELECTRO. 100UF-M 16V
C556	0893184R	CERAMIC CAPACITOR(22000PF 16V)	CA01	AA00936R	CERAMIC CAP. 2125-X5R 4.7UF 10V
C557	0800326R	CAP.-ELECTRO. 100UF-M 16V	CA03	0893027R	CAP 2125 CHIP 100000PF-K B 25V TAPE
C558	0800326R	CAP.-ELECTRO. 100UF-M 16V	CA06	AA00936R	CERAMIC CAP. 2125-X5R 4.7UF 10V
C559	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CA08	AA00936R	CERAMIC CAP. 2125-X5R 4.7UF 10V
C560	AA01802R	CCC103K50-B-16CTMCH18	CA09	AA00936R	CERAMIC CAP. 2125-X5R 4.7UF 10V
C562	0800326R	CAP.-ELECTRO. 100UF-M 16V	CA10	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
C563	0800326R	CAP.-ELECTRO. 100UF-M 16V	CA11	0893215R	CAP 1608CHIP 3300PFKB 50V TAPE
C567	0893112R	CAP 1608CHIP 9PFCCH 50V TAPE	CA12	0893186R	CERAMIC CAPACITOR(33000PF 16V)
C568	0893112R	CAP 1608CHIP 9PFCCH 50V TAPE	CA13	0893217R	CAP 1608CHIP 4700PFKB 50V TAPE
C569	0893112R	CAP 1608CHIP 9PFCCH 50V TAPE	CA14	AA01123R	CCC105K10-B-16CT
C570	0893114R	CAP 1608CHIP 12PFJCH 50V TAPE	CA15	0893197R	CAP 1608CHIP 22000PFKB 25V TAPE
C571	0893114R	CAP 1608CHIP 12PFJCH 50V TAPE	CA16	0893215R	CAP 1608CHIP 3300PFKB 50V TAPE
C572	0893114R	CAP 1608CHIP 12PFJCH 50V TAPE	CA17	0893186R	CERAMIC CAPACITOR(33000PF 16V)
C602	0800317R	CAP.-ELECTRO. 47UF-M(SMG) 16V	CA18	0893217R	CAP 1608CHIP 4700PFKB 50V TAPE
C604	0800347N	CAP.-ELECTRO. 330UF-M(SMG) 50V	CA19	0800288R	CAP.-ELECTRO. 4.7UF-M(SMG) 50V
C605	0800347N	CAP.-ELECTRO. 330UF-M(SMG) 50V	CA20	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
C606	AL01158R	CAP.ELECTROLYTIC 2.2UF-M(YXF)50V	CA21	AA00936R	CERAMIC CAP. 2125-X5R 4.7UF 10V
C607	AL01143S	CAP.ELECTROLYTIC 2200UF-M(YXF)25V	CA22	0800359R	CAP.-ELECTRO. 1000UF-M 10V
C608	0880207R	CAP.-POLYESTER 1.0UF-J 50V	CA23	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
C609	0880207R	CAP.-POLYESTER 1.0UF-J 50V	CA24	AA00936R	CERAMIC CAP. 2125-X5R 4.7UF 10V
C610	0800318R	CAP.-ELECTRO. 47UF-M 25V	CA26	AA00936R	CERAMIC CAP. 2125-X5R 4.7UF 10V
C612	0880198R	CAP.-PLOY. 0.22UF-J 50V	CA27	0893027R	CAP 2125 CHIP 100000PF-K B 25V TAPE
C613	0880194R	CAP.-POLYESTER 0.1UF-J 50V	CA29	0893221R	CAP 1608CHIP 8200PFKB 50V TAPE
C614	0880194R	CAP.-POLYESTER 0.1UF-J 50V	CA30	AA00936R	CERAMIC CAP. 2125-X5R 4.7UF 10V
C615	0880198R	CAP.-PLOY. 0.22UF-J 50V	CA31	AA01128R	CERAMIC CAPACITOR(0.33UF 10V)
C707	0244505R	CAP-CERAMIC 0.0022UF-K 500V	CA32	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
C708	0243509R	CAP.-CERAMIC 470PF-K 500V	CA33	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
C709	0890081R	CAP.-CERAMIC 330PF 50V	CA34	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
⚠C710	AN02278F	CAP.POLYPRO ECWH20472JV	CA35	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
⚠C711	AN02276F	CAP.POLYPRO ECWH20392JV	CA36	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
C713	AN02318F	CAP.POLYPRO ECWF2334JS	CA37	0800318R	CAP.-ELECTRO. 47UF-M 25V
C714	AN02318F	CAP.POLYPRO ECWF2334JS	CA38	0893208R	CAP 1608CHIP 1000PFKB 50V TAPE
C715	0284634R	CAP.-ELECTRO 4.7UF-SME(BP) 50V	CA39	0893208R	CAP 1608CHIP 1000PFKB 50V TAPE
C717	AN02261F	CAP.POLYPRO ECWH20102JV	CA40	0800288R	CAP.-ELECTRO. 4.7UF-M(SMG) 50V
C718	0244505R	CAP-CERAMIC 0.0022UF-K 500V	CA41	0800318R	CAP.-ELECTRO. 47UF-M 25V
C719	0244505R	CAP-CERAMIC 0.0022UF-K 500V	CA42	0800329R	CAP.-ELECTRO. 100UF-M(SMG) 50V
C720	0800326R	CAP.-ELECTRO. 100UF-M 16V	CA43	0800328R	CAP. ELECTRO. 100UF-M 35V
C722	0880194R	CAP.-POLYESTER 0.1UF-J 50V	CA44	0880194R	CAP.-POLYESTER 0.1UF-J 50V
C723	AN02325F	CAP.POLYPRO ECWF2564JS	CA45	0880194R	CAP.-POLYESTER 0.1UF-J 50V
C725	0800329R	CAP.-ELECTRO. 100UF-M(SMG) 50V	CA46	AL01172S	CAP.ELECTROLYTIC 2200UF-M(YXF)50V
C726	0800355N	CAP.ELECTRO. 470UF-M 35V	CA47	0880194R	CAP.-POLYESTER 0.1UF-J 50V
C727	0800355N	CAP.ELECTRO. 470UF-M 35V	CA48	0800318R	CAP.-ELECTRO. 47UF-M 25V
C728	0890084R	CAP.-CERAMIC 560PF-K 50V	CA49	0284827F	CAP.-ELECTRO.2200UF-M 50V
C734	0880035R	CAP.-POLY 2200PF-50V	CA50	0284827F	CAP.-ELECTRO.2200UF-M 50V
C801	0890077R	CAP.-CERAMIC 180PF-K 50V	CA51	0880044R	CAP.-POLYESTER 0.01UF-KEB 50V

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SYMBOL NO.	PART NO.	PART DESCRIPTION
CA52	0880044R	CAP.-POLYESTER 0.01UF-KEB 50V
CA53	0258616	CAP.-ELECTRO 2.2UF-M 50V
CA54	0258616	CAP.-ELECTRO 2.2UF-M 50V
CA55	0800286R	CAP.-ELECTRO. 4.7UF-M(SMG) 25V
CB01	0880048R	CAP.-POLYESTER 0.022UF-KEB 50V
CB02	0880207R	CAP.-POLYESTER 1.0UF-J 50V
CB03	0880207R	CAP.-POLYESTER 1.0UF-J 50V
CB04	0880203R	CAP.-POLYESTER 0.47UF-J 50V
CB05	0890074R	CAP.-CERAMIC 100PF-J 50V
CB07	0880057R	CAP.-POLYESTER 0.1UF-KEB 50V
CB08	0880057R	CAP.-POLYESTER 0.1UF-KEB 50V
CB10	0890085R	CAP.-CERAMIC 680PF-K 50V
CB11	0880044R	CAP.-POLYESTER 0.01UF-KEB 50V
CB12	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CB13	0800353R	CAP.-ELECTRO.470UF-M 16V
CB14	0880057R	CAP.-POLYESTER 0.1UF-KEB 50V
CB16	0800317R	CAP.-ELECTRO. 47UF-M(SMG) 16V
CB17	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CB18	0880035R	CAP.-POLY 2200PF-50V
CE01	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CE03	0244541F	CAPACITOR-CERAMIC 0.01MF-K B 500V
CE04	0244541F	CAPACITOR-CERAMIC 0.01MF-K B 500V
CE06	0244509R	CAP.-CERAMIC 4700PF-KB B 500V
CE07	0800329R	CAP.-ELECTRO. 100UF-M(SMG) 50V
CE08	0800329R	CAP.-ELECTRO. 100UF-M(SMG) 50V
CE09	AL00027R	CAP.-ELECTORO. 4.7UF-M 250V
CE10	0800326R	CAP.-ELECTRO. 100UF-M 16V
CE11	0800279R	CAP.-ELECTORO. 1.0UF-M(SMG) 50V
CE12	AL00032R	CAP.-ELECTORO. 47UF-M 250V
CE13	0244541F	CAPACITOR-CERAMIC 0.01MF-K B 500V
CE14	0246836R	CAP.CERAMIC 18PF 500V TAPE
CE51	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CE53	0244541F	CAPACITOR-CERAMIC 0.01MF-K B 500V
CE54	0244541F	CAPACITOR-CERAMIC 0.01MF-K B 500V
CE56	0244509R	CAP.-CERAMIC 4700PF-KB B 500V
CE57	0800329R	CAP.-ELECTRO. 100UF-M(SMG) 50V
CE58	0800329R	CAP.-ELECTRO. 100UF-M(SMG) 50V
CE60	AL00032R	CAP.-ELECTORO. 47UF-M 250V
CE61	0244541F	CAPACITOR-CERAMIC 0.01MF-K B 500V
CE62	0246836R	CAP.CERAMIC 18PF 500V TAPE
CE63	AL00027R	CAP.-ELECTORO. 4.7UF-M 250V
CEA1	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CEA3	0244541F	CAPACITOR-CERAMIC 0.01MF-K B 500V
CEA4	0244541F	CAPACITOR-CERAMIC 0.01MF-K B 500V
CEA6	0244509R	CAP.-CERAMIC 4700PF-KB B 500V
CEA7	0800329R	CAP.-ELECTRO. 100UF-M(SMG) 50V
CEA8	0800329R	CAP.-ELECTRO. 100UF-M(SMG) 50V
CEC1	AL00025R	CAP.ALMI 2.2UF250V
CEC2	AL00032R	CAP.-ELECTORO. 47UF-M 250V
CEC3	0244541F	CAPACITOR-CERAMIC 0.01MF-K B 500V
CEC4	0246836R	CAP.CERAMIC 18PF 500V TAPE
CEC5	AL00027R	CAP.-ELECTORO. 4.7UF-M 250V
CF01	AN02314F	CAP.POLYPRO ECWF2224JS
CF02	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CF03	AJ00138R	CAP. CERAMIC CK45-R3DD222K-VR
CF04	0284638R	CAP.-ELECTRO. 10UF-SME(BP) 16V
CH01	0800326R	CAP.-ELECTRO. 100UF-M 16V
CH02	0890078R	CAP.-CERAMIC 220PF-K 50V
CH03	0880044R	CAP.-POLYESTER 0.01UF-KEB 50V
CH05	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CH06	0800279R	CAP.-ELECTORO. 1.0UF-M(SMG) 50V
CH07	0880033R	CAP.-POLYESTER 0.0015UF-KEB50V
CH08	0800326R	CAP.-ELECTRO. 100UF-M 16V
CH09	0880207R	CAP.-POLYESTER 1.0UF-J 50V
CH10	0880194R	CAP.-POLYESTER 0.1UF-J 50V
⚠CH13	AN02263F	CAP.POLYPRO ECWH20122JV
CH14	0279692R	CAP.-POLYESTER 0.068UF 100V
CH15	0880039R	CAP.-POLYESTER 0.0047UF-KEB50V
CH16	AL01727	CAP.ALUMI.160V 680UF KMH(M)
⚠CH17	0800279R	CAP.-ELECTORO. 1.0UF-M(SMG) 50V
CH18	0880198R	CAP.-PLOY. 0.22UF-J 50V
CH19	0880035R	CAP.-POLY 2200PF-50V
⚠CH20	AN02263F	CAP.POLYPRO ECWH20122JV
CH21	0279690R	CAP.-POLYESTOR 0.033UF 100V
CH24	0880207R	CAP.-POLYESTER 1.0UF-J 50V
CH99	0880203R	CAP.-POLYESTER 0.47UF-J 50V
CJ01	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ03	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ04	0800326R	CAP.-ELECTRO. 100UF-M 16V
CJ05	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CJ06	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ07	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ08	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ09	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ10	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ11	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ12	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CJ13	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ14	0893208R	CAP 1608CHIP 1000PFKB 50V TAPE
CJ16	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CJ17	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ18	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ19	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ20	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CJ21	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CJ22	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ23	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ24	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ25	0893208R	CAP 1608CHIP 1000PFKB 50V TAPE
CJ26	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ27	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CJ28	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ29	0893188R	CERAMIC CAPACITOR(47000PF 16V)
CJ30	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CJ31	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CJ32	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ33	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ34	0800326R	CAP.-ELECTRO. 100UF-M 16V
CJ35	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ36	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ37	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CJ38	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ39	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ40	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ41	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ42	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ43	0893239R	CAP 1608CHIP 10000PFZF 50V TAPE
CJ45	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CJ46	0800326R	CAP.-ELECTRO. 100UF-M 16V
CJ47	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CJ48	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ49	0800352R	CAP.-ELECTRO.470UF 10V
CJ50	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CJ51	0893131R	CAP 1608CHIP 220PFJCH 50V TAPE
CJ52	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ53	0800352R	CAP.-ELECTRO.470UF 10V
CJ54	0893122R	CAP 1608CHIP 47PFJCH 50V TAPE
CJ55	0800279R	CAP.-ELECTORO. 1.0UF-M(SMG) 50V
CJ56	0893208R	CAP 1608CHIP 1000PFKB 50V TAPE
CJ57	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CJ58	0893131R	CAP 1608CHIP 220PFJCH 50V TAPE
CJ59	0893122R	CAP 1608CHIP 47PFJCH 50V TAPE
CJ60	0800279R	CAP.-ELECTORO. 1.0UF-M(SMG) 50V
CJ61	0893208R	CAP 1608CHIP 1000PFKB 50V TAPE
CJ62	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ63	0800326R	CAP.-ELECTRO. 100UF-M 16V
CJ64	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ65	0800326R	CAP.-ELECTRO. 100UF-M 16V
CJ66	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CJ67	0800358R	CAP.-ELECTRO. 1000UF-M 6.3V
CJH3	AA02451R	AVRL161A1R1NT
CJH4	AA02451R	AVRL161A1R1NT
CJJ6	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CK01	0800326R	CAP.-ELECTRO. 100UF-M 16V
CK02	0880194R	CAP.-POLYESTER 0.1UF-J 50V
CK03	0800328R	CAP. ELECTRO. 100UF-M 35V
CK04	0880194R	CAP.-POLYESTER 0.1UF-J 50V
CK05	0800326R	CAP.-ELECTRO. 100UF-M 16V
CK06	0880194R	CAP.-POLYESTER 0.1UF-J 50V
CK07	0880194R	CAP.-POLYESTER 0.1UF-J 50V

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
CK08	0800326R	CAP.-ELECTRO. 100UF-M 16V	CP36	0800361N	CAP.-ELECTRO 1000UF 16V
CK09	0880044R	CAP.-POLYESTER 0.01UF-KEB 50V	CP37	AL00032R	CAP.-ELECTORO. 47UF-M 250V
CK10	0890024M	CAP.-CERAMIC 150PF-K B 50V CYLINDORICAL	CP39	0800326R	CAP.-ELECTRO. 100UF-M 16V
CK11	0890024M	CAP.-CERAMIC 150PF-K B 50V CYLINDORICAL	CP40	0800352R	CAP.-ELECTRO.470UF 10V
CK13	AL00016R	ALUMINIUM ELECTROLYTIC CAP.(10UF200V)	CP41	0299969F	CAP.-POLYESTER 0.001UF-JPF160V
CK14	0800326R	CAP.-ELECTRO. 100UF-M 16V	CP42	AJ00132R	CAP. CERAMIC CK45-R3DD681K-VR
CK15	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V	CP43	AJ00132R	CAP. CERAMIC CK45-R3DD681K-VR
CK17	0880033R	CAP.-POLYESTER 0.0015UF-KEB50V	CP45	AL02303	CE-101M161EW KMX 16*25
CK18	0880044R	CAP.-POLYESTER 0.01UF-KEB 50V	CP45	AL02303	CE-101M161EW KMX 16*25
CK40	0800355N	CAP.ELECTRO. 470UF-M 35V	CP46	0800319R	CAP.-ELECTRO. 47UF-M 35V
CK41	0800355N	CAP.ELECTRO. 470UF-M 35V	CP47	0880203R	CAP.-POLYESTER 0.47UF-J 50V
CK42	0880044R	CAP.-POLYESTER 0.01UF-KEB 50V	CP49	0800299R	CAP.-ELECTRO. 22UF-M(SMG) 16V
CK43	0880044R	CAP.-POLYESTER 0.01UF-KEB 50V	CP50	0243511R	CAP.-CERAMIC 680PF-K 500V TAPE
CK44	0890079R	CAP.-CERAMIC 270PF-K 50V	CP51	0243511R	CAP.-CERAMIC 680PF-K 500V TAPE
CK45	0890079R	CAP.-CERAMIC 270PF-K 50V	CV01	0284638R	CAP.-ELECTRO. 10UF-SME(BP) 16V
CK46	0890079R	CAP.-CERAMIC 270PF-K 50V	CV02	0800326R	CAP.-ELECTRO. 100UF-M 16V
CK47	0890079R	CAP.-CERAMIC 270PF-K 50V	CV03	0800326R	CAP.-ELECTRO. 100UF-M 16V
CK48	0890079R	CAP.-CERAMIC 270PF-K 50V	CV04	0800326R	CAP.-ELECTRO. 100UF-M 16V
CK49	0890079R	CAP.-CERAMIC 270PF-K 50V	CV05	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CK50	0890024M	CAP.-CERAMIC 150PF-K B 50V CYLINDORICAL	CV06	0800326R	CAP.-ELECTRO. 100UF-M 16V
CK51	0890024M	CAP.-CERAMIC 150PF-K B 50V CYLINDORICAL	CV07	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CK52	0890024M	CAP.-CERAMIC 150PF-K B 50V CYLINDORICAL	CV08	0284638R	CAP.-ELECTRO. 10UF-SME(BP) 16V
CK53	0890024M	CAP.-CERAMIC 150PF-K B 50V CYLINDORICAL	CV09	0893118R	CAP 1608CHIP 27PFJCH 50V TAPE
CK54	0890024M	CAP.-CERAMIC 150PF-K B 50V CYLINDORICAL	CV10	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CK55	0890024M	CAP.-CERAMIC 150PF-K B 50V CYLINDORICAL	CV11	0893115R	CAP 1608CHIP 15PFJCH 50V TAPE
CL07	0800328R	CAP. ELECTRO. 100UF-M 35V	CV12	AA01101R	CERAMIC CAPACITOR(1UF 10V-F)
CL08	0880194R	CAP.-POLYESTER 0.1UF-J 50V	CV13	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CL10	0880048R	CAP.-POLYESTER 0.022UF-KEB 50V	CV14	0893111R	CAP 1608CHIP 8PFCCH 50V TAPE
CL10	0880053R	CAP.-POLYESTER 0.047UF-KEB 50V	CV15	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CL11	0880053R	CAP.-POLYESTER 0.047UF-KEB 50V	CV16	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CL12	0880048R	CAP.-POLYESTER 0.022UF-KEB 50V	CV17	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CL12	0880053R	CAP.-POLYESTER 0.047UF-KEB 50V	CV19	0893114R	CAP 1608CHIP 12PFJCH 50V TAPE
CL13	0880053R	CAP.-POLYESTER 0.047UF-KEB 50V	CV20	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CL14	0880053R	CAP.-POLYESTER 0.047UF-KEB 50V	CV22	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CL15	0880053R	CAP.-POLYESTER 0.047UF-KEB 50V	CV23	0893121R	CAP 1608CHIP 39PFJCH 50V TAPE
CL16	0880053R	CAP.-POLYESTER 0.047UF-KEB 50V	CV24	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CL17	0880053R	CAP.-POLYESTER 0.047UF-KEB 50V	CV25	AA01136R	CERAMIC CAPACITOR(0.47UF 6.3V)
CM02	0880044R	CAP.-POLYESTER 0.01UF-KEB 50V	CV26	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CM04	0880039R	CAP.-POLYESTER 0.0047UF-KEB50V	CV27	0893114R	CAP 1608CHIP 12PFJCH 50V TAPE
CM06	0880194R	CAP.-POLYESTER 0.1UF-J 50V	CV28	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CM09	0880044R	CAP.-POLYESTER 0.01UF-KEB 50V	CV29	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CM10	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V	CV30	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CM11	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V	CV31	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CM12	0800318R	CAP.-ELECTRO. 47UF-M 25V	CV32	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CM14	0880194R	CAP.-POLYESTER 0.1UF-J 50V	CV33	AA00964R	CERAMIC CAPACITOR(2.2UF 6.3V)
CM16	0880194R	CAP.-POLYESTER 0.1UF-J 50V	CV34	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CM17	0800325R	CAP.-ELECTRO. 100UF-M 10V	CV35	AA01123R	CCC105K10-B-16CT
CM18	0880044R	CAP.-POLYESTER 0.01UF-KEB 50V	CV37	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CM19	0800325R	CAP.-ELECTRO. 100UF-M 10V	CV38	AA00964R	CERAMIC CAPACITOR(2.2UF 6.3V)
CN01	0890084R	CAP.-CERAMIC 560PF-K 50V	CV40	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CN02	0800353R	CAP.-ELECTRO.470UF-M 16V	CV41	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CN03	0880051R	CAP.-POLYESTER 0.033UF-KEB 50V	CV42	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CN04	0800288R	CAP.-ELECTRO. 4.7UF-M(SMG) 50V	CV43	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CN05	0800279R	CAP.-ELECTORO. 1.0UF-M(SMG) 50V	CV44	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
⚠ CP01	AJ00167F	CAP.CERAMIC CS12-F2GA472MYNS	CV45	0800326R	CAP.-ELECTRO. 100UF-M 16V
⚠ CP02	AJ00167F	CAP.CERAMIC CS12-F2GA472MYNS	CV46	0800352R	CAP.-ELECTRO.470UF 10V
CP03	AL02762	CAP.ELEC. 680UF 200V MXC SERIES	CV47	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CP04	AL02762	CAP.ELEC. 680UF 200V MXC SERIES	CV48	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CP05	AJ00133R	CAP. CERAMIC CK45-R3DD821K-VR	CV49	0893129R	CAP 1608CHIP 180PFJCH 50V TAPE
CP06	AJ00133R	CAP. CERAMIC CK45-R3DD821K-VR	CV50	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CP07	AN02373F	CAP.POLYPRO 630V0.082UF FNS(135)	CV51	0893127R	CAP 1608CHIP 120PFJCH 50V TAPE
CP08	0880194R	CAP.-POLYESTER 0.1UF-J 50V	CV52	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CP09	0800284R	CAP.-ELECTRO. 3.3UF-M(SMG) 50V	CV53	AA01123R	CCC105K10-B-16CT
CP10	0270426R		CV54	0893119R	CAP 1608CHIP 33PFJCH 50V TAPE
CP11	0800288R	CAP.-ELECTRO. 4.7UF-M(SMG) 50V	CV55	0800326R	CAP.-ELECTRO. 100UF-M 16V
CP12	0800288R	CAP.-ELECTRO. 4.7UF-M(SMG) 50V	CV56	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CP13	0800337R	CAP.-ELECTRO 220UF 35V (SMG TY PE)	CV57	AA01101R	CERAMIC CAPACITOR(1UF 10V-F)
CP14	0880031R	CAP.-POLY.1000PF-K 50V	CV58	0893135R	CAP 1608CHIP 470PFJCH 50V TAPE
⚠ CP20	AJ00182F	CAP. CERAMIC CD85-E2GA102MYNS	CV59	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CP30	0244501R	CAP.-CERAMIC 1000PF-K 500V	CV60	0893213R	CAP1608CHIP 2200PFKB 50V TAPE
CP31	0243509R	CAP.-CERAMIC 470PF-K 500V	CV61	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CP32	AL01153S	CAP.ELECTR. 1000UF-M 35V	CV62	AA00964R	CERAMIC CAPACITOR(2.2UF 6.3V)
CP33	AL01152R	CAP.ELECTROLYTIC 470UF-M(YXF)35V	CV63	AA01123R	CCC105K10-B-16CT
CP34	0800337R	CAP.-ELECTRO 220UF 35V (SMG TY PE)	CV64	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CP35	0800337R	CAP.-ELECTRO 220UF 35V (SMG TY PE)	CV66	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
CV67	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)	CY29	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CV68	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	CY30	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CV69	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)	CY31	0800282R	CAP.-ELECTORO. 2.2UF-M(SMG) 50V
CV71	0800326R	CAP.-ELECTRO. 100UF-M 16V	CY32	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CV72	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	CY33	0800352R	CAP.-ELECTRO.470UF 10V
CV73	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	CY34	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CV74	0800326R	CAP.-ELECTRO. 100UF-M 16V	CY35	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CV75	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CY36	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CV76	0800326R	CAP.-ELECTRO. 100UF-M 16V	CY37	0800352R	CAP.-ELECTRO.470UF 10V
CV77	AA01123R	CCC105K10-B-16CT	CY38	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CV78	AA01123R	CCC105K10-B-16CT	CY39	AA01121R	CERAMIC CAPACITOR(0.47UF 10V)
CV79	AA01123R	CCC105K10-B-16CT	CY40	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CV80	AA01123R	CCC105K10-B-16CT	CY41	AA01144R	CERAMIC CAP. 1608-B 1.0UF 16V
CV81	AA01123R	CCC105K10-B-16CT	CY42	AA00934R	CAP. CERAMIC 2012 (2.2UF 10V)
CV82	AA01123R	CCC105K10-B-16CT	CY43	AA00934R	CAP. CERAMIC 2012 (2.2UF 10V)
CV83	AA01123R	CCC105K10-B-16CT	CY44	AA00934R	CAP. CERAMIC 2012 (2.2UF 10V)
CV84	AA01123R	CCC105K10-B-16CT	CY45	AA00934R	CAP. CERAMIC 2012 (2.2UF 10V)
CV85	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V	CY46	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CV86	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CY47	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CV87	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CY48	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CV88	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CY49	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CV89	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CY50	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CV91	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)	CY51	0800359R	CAP.-ELECTRO. 1000UF-M 10V
CV92	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	CY52	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CV93	0800326R	CAP.-ELECTRO. 100UF-M 16V	CY53	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CV95	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	CY54	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CV96	0800326R	CAP.-ELECTRO. 100UF-M 16V	CY56	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CV97	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V	CY57	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CV98	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)	CY58	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CV99	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CY61	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CW00	0893112R	CAP 1608CHIP 9PFCCH 50V TAPE	CY62	0800352R	CAP.-ELECTRO.470UF 10V
CW01	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CY63	0800352R	CAP.-ELECTRO.470UF 10V
CW02	AA01143R	CERAMIC CAPACITOR(0.22UF 16V-B)	CY64	0800326R	CAP.-ELECTRO. 100UF-M 16V
CW03	0893213R	CAP1608CHIP 2200PFKB 50V TAPE	CY65	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CW04	0893112R	CAP 1608CHIP 9PFCCH 50V TAPE	CY66	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CW05	AA00934R	CAP. CERAMIC 2012 (2.2UF 10V)	CY67	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CW06	AA01143R	CERAMIC CAPACITOR(0.22UF 16V-B)	CY68	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CW07	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)	CY69	0800326R	CAP.-ELECTRO. 100UF-M 16V
CW08	0893213R	CAP1608CHIP 2200PFKB 50V TAPE	CY70	0800326R	CAP.-ELECTRO. 100UF-M 16V
CW09	AA00964R	CERAMIC CAPACITOR(2.2UF 6.3V)	CY71	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CW10	AA00934R	CAP. CERAMIC 2012 (2.2UF 10V)	CY72	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CW11	0893217R	CAP 1608CHIP 4700PFKB 50V TAPE	CY73	0800359R	CAP.-ELECTRO. 1000UF-M 10V
CW12	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)	CY76	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CW13	AA00964R	CERAMIC CAPACITOR(2.2UF 6.3V)	CY77	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CW14	0893217R	CAP 1608CHIP 4700PFKB 50V TAPE	CY78	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CW15	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CY79	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CW16	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CY80	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CW17	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	CY81	0800326R	CAP.-ELECTRO. 100UF-M 16V
CW18	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	CY82	0800326R	CAP.-ELECTRO. 100UF-M 16V
CY01	0800326R	CAP.-ELECTRO. 100UF-M 16V	CY86	0893113R	CAP 1608CHIP 10PFCCH 50V TAPE
CY03	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CY87	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)
CY05	0800326R	CAP.-ELECTRO. 100UF-M 16V	CY92	0800326R	CAP.-ELECTRO. 100UF-M 16V
CY06	0800326R	CAP.-ELECTRO. 100UF-M 16V	CY93	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CY07	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CY94	0800359R	CAP.-ELECTRO. 1000UF-M 10V
CY08	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CY95	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CY09	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CY96	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CY10	0800352R	CAP.-ELECTRO.470UF 10V	CY97	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CY11	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CY98	0800326R	CAP.-ELECTRO. 100UF-M 16V
CY13	0800352R	CAP.-ELECTRO.470UF 10V	CY99	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CY14	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CZ00	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CY15	0800352R	CAP.-ELECTRO.470UF 10V	CZ01	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CY16	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CZ02	0893232R	CAP 1608CHIP 100000PFZF25V TAPE
CY17	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CZ04	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V
CY18	0800352R	CAP.-ELECTRO.470UF 10V	CZ07	AA01101R	CERAMIC CAPACITOR(1UF 10V-F)
CY19	0800358R	CAP.-ELECTRO. 1000UF-M 6.3V	CZ08	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CY20	0893232R	CAP 1608CHIP 100000PFZF25V TAPE	CZ09	0800326R	CAP.-ELECTRO. 100UF-M 16V
CY21	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V	CZ10	0893222R	CAP 1608CHIP10000PFKB 50V TAPE
CY22	0800294R	CAP.-ELECTRO. 10UF-M(SMG) 50V			
CY23	0893222R	CAP 1608CHIP10000PFKB 50V TAPE			**DIODES**
CY24	0284634R	CAP.-ELECTRO 4.7UF-SME(BP) 50V			
CY25	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	D001	2348212M	ZENER DIODE MTZ-J15B
CY26	0893222R	CAP 1608CHIP10000PFKB 50V TAPE	D002	2348212M	ZENER DIODE MTZ-J15B
CY27	AA01121R	CERAMIC CAPACITOR(0.47UF 10V)	D003	2348212M	ZENER DIODE MTZ-J15B
CY28	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)	D004	2348212M	ZENER DIODE MTZ-J15B
CY29	AA01141R	CERAMIC CAPACITOR(0.1UF 16V)	D005	2348212M	ZENER DIODE MTZ-J15B

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
x	2348212M	ZENER DIODE MTZ-J15B	D8A7	2344041M	DIODE 1SS254TA/1SS270TA
D007	2348212M	ZENER DIODE MTZ-J15B	D8C3	CH02001M	DIODE 1SR139-400
D008	2348212M	ZENER DIODE MTZ-J15B	D8C4	CH02001M	DIODE 1SR139-400
D009	2348212M	ZENER DIODE MTZ-J15B	D8C5	CH02001M	DIODE 1SR139-400
D010	2344041M	DIODE 1SS254TA/1SS270TA	D8C6	CH02001M	DIODE 1SR139-400
D017	2344041M	DIODE 1SS254TA/1SS270TA	DA01	2339782R	DIODE.CHIP DAN202UT106(80V)
D018	2344041M	DIODE 1SS254TA/1SS270TA	DA03	2339782R	DIODE.CHIP DAN202UT106(80V)
D019	2344041M	DIODE 1SS254TA/1SS270TA	DA04	2339782R	DIODE.CHIP DAN202UT106(80V)
D020	2344041M	DIODE 1SS254TA/1SS270TA	DA07	CC10521R	DIODE
D021	2344041M	DIODE 1SS254TA/1SS270TA	DA09	2337341M	DIODE 1SS270A (TP)
D023	2348163M	ZENER MTZJ-9.1C TA	DA10	2337341M	DIODE 1SS270A (TP)
D024	2348163M	ZENER MTZJ-9.1C TA	DA11	2337341M	DIODE 1SS270A (TP)
D025	2348123M	ZENER MTZJ-6.2C TA	DA12	2337341M	DIODE 1SS270A (TP)
D302	2348293M	DIODE MTZ-J33CTA	DA14	2339782R	DIODE.CHIP DAN202UT106(80V)
D303	2348293M	DIODE MTZ-J33CTA	DB03	2348193M	ZENER DIODE MTZJ-12C TA
D401	2348212M	ZENER DIODE MTZ-J15B	DB04	2348193M	ZENER DIODE MTZJ-12C TA
D405	2348031M	DIO-MTZ-J2.7ATA	DB06	2344041M	DIODE 1SS254TA/1SS270TA
D406	2348031M	DIO-MTZ-J2.7ATA	DB09	2348193M	ZENER DIODE MTZJ-12C TA
D407	CC00971R	DIODE.CHIP DAN202KT146	DB10	2348193M	ZENER DIODE MTZJ-12C TA
D409	CC01651R	DIODE SFPB-66	DE01	2344041M	DIODE 1SS254TA/1SS270TA
D410	CH02001M	DIODE 1SR139-400	DE02	2344041M	DIODE 1SS254TA/1SS270TA
D411	CC00003R	DIODE.CHIP 1SS355	DE05	CH02001M	DIODE 1SR139-400
D601	2348103M	ZENER MTZJ-5.1C TA	DE06	CH02001M	DIODE 1SR139-400
D603	CH02001M	DIODE 1SR139-400	DE07	CH02001M	DIODE 1SR139-400
D605	CH02011M	DIODE 1SR153-400	DE08	CH02001M	DIODE 1SR139-400
D606	2334305M	ZENER RD30E (B4 T2/TP/TA) SI 5MA 30.51V	DE09	2344041M	DIODE 1SS254TA/1SS270TA
D607	CH02001M	DIODE 1SR139-400	DE10	2344041M	DIODE 1SS254TA/1SS270TA
D608	2344041M	DIODE 1SS254TA/1SS270TA	DE51	2344041M	DIODE 1SS254TA/1SS270TA
D610	2334324M	ZENER DIODE RD36E TAPE (B3) SI 500MW 36V	DE52	2344041M	DIODE 1SS254TA/1SS270TA
D611	2334315M	ZENER DIODE RD33E TAPE (B4)	DE55	CH02001M	DIODE 1SR139-400
D701	CH02001M	DIODE 1SR139-400	DE56	CH02001M	DIODE 1SR139-400
D705	2348193M	ZENER DIODE MTZJ-12C TA	DE57	CH02001M	DIODE 1SR139-400
D706	2348163M	ZENER MTZJ-9.1C TA	DE58	CH02001M	DIODE 1SR139-400
D709	2344041M	DIODE 1SS254TA/1SS270TA	DE59	2344041M	DIODE 1SS254TA/1SS270TA
D709	2344041M	DIODE 1SS254TA/1SS270TA	DE60	2344041M	DIODE 1SS254TA/1SS270TA
D711	CH00041M	DIODE ES1FV1 (1500V)	DEA1	2344041M	DIODE 1SS254TA/1SS270TA
D712	CH00041M	DIODE ES1FV1 (1500V)	DEA2	2344041M	DIODE 1SS254TA/1SS270TA
D713	2348002M	DIODE MTZ-J2.0BT	DEA5	CH02001M	DIODE 1SR139-400
D715	CH02001M	DIODE 1SR139-400	DEA6	CH02001M	DIODE 1SR139-400
D716	2344041M	DIODE 1SS254TA/1SS270TA	DEA7	CH02001M	DIODE 1SR139-400
D717	2348142M	ZENER MTZ-J7.5BTA	DEA8	CH02001M	DIODE 1SR139-400
D719	2344041M	DIODE 1SS254TA/1SS270TA	DEC0	2344041M	DIODE 1SS254TA/1SS270TA
D722	CH02001M	DIODE 1SR139-400	DEC9	2344041M	DIODE 1SS254TA/1SS270TA
D723	CH02001M	DIODE 1SR139-400	DF01	2344041M	DIODE 1SS254TA/1SS270TA
D801	2344041M	DIODE 1SS254TA/1SS270TA	⚠DH01	2348093M	DIODE MTZ-J4.7C TAPE
D802	2344041M	DIODE 1SS254TA/1SS270TA	DH02	2344041M	DIODE 1SS254TA/1SS270TA
D803	2344041M	DIODE 1SS254TA/1SS270TA	DH03	2344041M	DIODE 1SS254TA/1SS270TA
D804	2344041M	DIODE 1SS254TA/1SS270TA	DH04	2348091M	DIODE MTZ-J4.7A TAPE
D806	2344041M	DIODE 1SS254TA/1SS270TA	DH05	2348193M	ZENER DIODE MTZJ-12C TA
D808	2344041M	DIODE 1SS254TA/1SS270TA	DH06	2344041M	DIODE 1SS254TA/1SS270TA
D809	2344041M	DIODE 1SS254TA/1SS270TA	⚠DH07	2359312S	DIODE RU3C LF-C4 (1000V 1.5A)
D813	CH02001M	DIODE 1SR139-400	DH08	2334243M	ZENER RD16E (B2 T2/TP/TA) SI 10MA 16.51V
D814	CH02001M	DIODE 1SR139-400	⚠DH09	CH00041M	DIODE ES1FV1 (1500V)
D815	CH02001M	DIODE 1SR139-400	DH10	2334243M	ZENER RD16E (B2 T2/TP/TA) SI 10MA 16.51V
D816	CH02001M	DIODE 1SR139-400	⚠DH11	2359312S	DIODE RU3C LF-C4 (1000V 1.5A)
D817	2348212M	ZENER DIODE MTZ-J15B	DH12	CH02001M	DIODE 1SR139-400
D851	2344041M	DIODE 1SS254TA/1SS270TA	⚠DH13	CH00031M	DIODE AU02V1(280V)
D851	2344041M	DIODE 1SS254TA/1SS270TA	DH14	2334304M	ZENER RD30E (B3 T2/TP/TA) SI 5MA 30.51V
D852	2344041M	DIODE 1SS254TA/1SS270TA	⚠DH15	2335042M	ZENER HZ-22 (2L TP) SI 200MA 400MW
D853	2344041M	DIODE 1SS254TA/1SS270TA	DH16	2334305M	ZENER RD30E (B4 T2/TP/TA) SI 5MA 30.51V
D854	2344041M	DIODE 1SS254TA/1SS270TA	DH17	2344041M	DIODE 1SS254TA/1SS270TA
D856	2344041M	DIODE 1SS254TA/1SS270TA	DH18	2344041M	DIODE 1SS254TA/1SS270TA
D858	2344041M	DIODE 1SS254TA/1SS270TA	DJ01	CC00834R	ZENER.CHIP UDZ 15B
D859	2344041M	DIODE 1SS254TA/1SS270TA	DJ02	CC00003R	DIODE.CHIP 1SS355
D860	2348212M	ZENER DIODE MTZ-J15B	DJ13	CC00834R	ZENER.CHIP UDZ 15B
D863	CH02001M	DIODE 1SR139-400	DJ15	CC10752R	DIODE(DAP202U T106)
D864	CH02001M	DIODE 1SR139-400	DJ17	CC10752R	DIODE(DAP202U T106)
D865	CH02001M	DIODE 1SR139-400	DJ19	CC00003R	DIODE.CHIP 1SS355
D866	CH02001M	DIODE 1SR139-400	DJ20	CC00003R	DIODE.CHIP 1SS355
D8A1	2344041M	DIODE 1SS254TA/1SS270TA	DJ46	CC01731R	SCHOTTKY BAT254
D8A2	2344041M	DIODE 1SS254TA/1SS270TA	DJ47	CC00003R	DIODE.CHIP 1SS355
D8A3	2344041M	DIODE 1SS254TA/1SS270TA	DK01	2348142M	ZENER MTZ-J7.5BTA
D8A4	2344041M	DIODE 1SS254TA/1SS270TA	DK02	2348142M	ZENER MTZ-J7.5BTA
D8A5	2344041M	DIODE 1SS254TA/1SS270TA	DK03	2348142M	ZENER MTZ-J7.5BTA
D8A6	2344041M	DIODE 1SS254TA/1SS270TA	DK04	2348142M	ZENER MTZ-J7.5BTA

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
DK05	2348142M	ZENER MTZ-J7.5BTA	DL27	2348142M	ZENER MTZ-J7.5BTA
DK06	2348142M	ZENER MTZ-J7.5BTA	DL30	2348162M	DIODE MTZ -J 9.1B TA
DK07	2348142M	ZENER MTZ-J7.5BTA	DL31	2348162M	DIODE MTZ -J 9.1B TA
DK08	2348142M	ZENER MTZ-J7.5BTA	DL32	2348162M	DIODE MTZ -J 9.1B TA
DK09	2348142M	ZENER MTZ-J7.5BTA	DL33	2348162M	DIODE MTZ -J 9.1B TA
DK10	2348142M	ZENER MTZ-J7.5BTA	DL34	2348162M	DIODE MTZ -J 9.1B TA
DK11	2348142M	ZENER MTZ-J7.5BTA	DL35	2348162M	DIODE MTZ -J 9.1B TA
DK12	2348142M	ZENER MTZ-J7.5BTA	DL36	2348162M	DIODE MTZ -J 9.1B TA
DK13	2348142M	ZENER MTZ-J7.5BTA	DL37	2348162M	DIODE MTZ -J 9.1B TA
DK15	2348142M	ZENER MTZ-J7.5BTA	DL40	2348142M	ZENER MTZ-J7.5BTA
DK16	2339551M	DIODE ED14(V1) SI 5MA 45V	DL41	2348142M	ZENER MTZ-J7.5BTA
DK17	2339551M	DIODE ED14(V1) SI 5MA 45V	DL42	2348142M	ZENER MTZ-J7.5BTA
DK18	2344041M	DIODE 1SS254TA/1SS270TA	DL43	2348142M	ZENER MTZ-J7.5BTA
DK20	2348142M	ZENER MTZ-J7.5BTA	DL44	2348142M	ZENER MTZ-J7.5BTA
DK21	2348193M	ZENER DIODE MTZJ-12C TA	DL45	2348142M	ZENER MTZ-J7.5BTA
DK22	2348193M	ZENER DIODE MTZJ-12C TA	DL46	2348142M	ZENER MTZ-J7.5BTA
DK23	2348193M	ZENER DIODE MTZJ-12C TA	DL47	2348142M	ZENER MTZ-J7.5BTA
DK24	2348193M	ZENER DIODE MTZJ-12C TA	DM04	2348212M	ZENER DIODE MTZ-J15B
DK25	2348193M	ZENER DIODE MTZJ-12C TA	DM05	2348212M	ZENER DIODE MTZ-J15B
DK26	2348193M	ZENER DIODE MTZJ-12C TA	DM07	2348212M	ZENER DIODE MTZ-J15B
DK27	2344041M	DIODE 1SS254TA/1SS270TA	DM08	2348212M	ZENER DIODE MTZ-J15B
DK28	2344041M	DIODE 1SS254TA/1SS270TA	DM09	2348212M	ZENER DIODE MTZ-J15B
DK29	2344041M	DIODE 1SS254TA/1SS270TA	DM10	2348212M	ZENER DIODE MTZ-J15B
DK30	2344041M	DIODE 1SS254TA/1SS270TA	DM11	2348212M	ZENER DIODE MTZ-J15B
DK31	2344041M	DIODE 1SS254TA/1SS270TA	DM12	2348123M	ZENER MTZJ-6.2C TA
DK32	2344041M	DIODE 1SS254TA/1SS270TA	DM13	2348212M	ZENER DIODE MTZ-J15B
DK33	2344041M	DIODE 1SS254TA/1SS270TA	DM17	CH02711	SLR343 BBT3F (LED BLUE)
DK34	2344041M	DIODE 1SS254TA/1SS270TA	DM18	2348212M	ZENER DIODE MTZ-J15B
DK35	2331815M	ZENER HZ7-B2	DM20	2348212M	ZENER DIODE MTZ-J15B
DK36	2331815M	ZENER HZ7-B2	DM22	CH02671	LED SR3517F6 (RED)
DK37	2344041M	DIODE 1SS254TA/1SS270TA	DN01	2344041M	DIODE 1SS254TA/1SS270TA
DK42	2334324M	ZENER DIODE RD36E TAPE (B3) SI 500MW 36V	DN02	2344041M	DIODE 1SS254TA/1SS270TA
DK43	2334324M	ZENER DIODE RD36E TAPE (B3) SI 500MW 36V	DN03	2348002M	DIODE MTZ-J2.0BT
DK44	2334324M	ZENER DIODE RD36E TAPE (B3) SI 500MW 36V	DN04	2344041M	DIODE 1SS254TA/1SS270TA
DK45	2334324M	ZENER DIODE RD36E TAPE (B3) SI 500MW 36V	DN05	2348081M	DIODE MTZ-J4.3ATA
DK46	2334324M	ZENER DIODE RD36E TAPE (B3) SI 500MW 36V	DN06	2344041M	DIODE 1SS254TA/1SS270TA
DK47	2334324M	ZENER DIODE RD36E TAPE (B3) SI 500MW 36V	DN07	2344041M	DIODE 1SS254TA/1SS270TA
DK48	2334324M	ZENER DIODE RD36E TAPE (B3) SI 500MW 36V	DN08	2344041M	DIODE 1SS254TA/1SS270TA
DK49	2334324M	ZENER DIODE RD36E TAPE (B3) SI 500MW 36V	⚠ DP01	2342061	DIODE D3SB(A)60.
DK50	2334324M	ZENER DIODE RD36E TAPE (B3) SI 500MW 36V	DP02	CH02851M	D1NS4
DK51	2334324M	ZENER DIODE RD36E TAPE (B3) SI 500MW 36V	DP03	2338532M	DIODE EG01A (V1)
DK52	2334324M	ZENER DIODE RD36E TAPE (B3) SI 500MW 36V	DP04	CH02011M	DIODE 1SR153-400
DK53	2334324M	ZENER DIODE RD36E TAPE (B3) SI 500MW 36V	DP30	CH02751	FMN-G12S
DK54	2348142M	ZENER MTZ-J7.5BTA	DP31	2337951S	DIODE RU4Z(LF015-302)
DK55	2348142M	ZENER MTZ-J7.5BTA	DP32	CH02871U	D4SBS4
DK56	2348142M	ZENER MTZ-J7.5BTA	DP33	CH02891U	S1WBA40L
DK57	2348142M	ZENER MTZ-J7.5BTA	DP34	CH02881U	D4SBL20U
DK58	2348142M	ZENER MTZ-J7.5BTA	DP35	2334304M	ZENER RD30E (B3 T2/TP/TA) SI 5MA 30.51V
DK59	2348142M	ZENER MTZ-J7.5BTA	DP36	2348282M	DIODE MTZ-J30B TAPE
DK60	2348142M	ZENER MTZ-J7.5BTA	DP37	2344041M	DIODE 1SS254TA/1SS270TA
DK61	2348142M	ZENER MTZ-J7.5BTA	DP38	2344041M	DIODE 1SS254TA/1SS270TA
DK62	2348142M	ZENER MTZ-J7.5BTA	DP39	2348143M	DIODE MTZ-J7.5CTA
DK63	2348142M	ZENER MTZ-J7.5BTA	DP40	CH02673R	LED SM3517F6T (GREEN)
DK64	2348142M	ZENER MTZ-J7.5BTA	DP46	2348081M	DIODE MTZ-J4.3ATA
DK65	2348142M	ZENER MTZ-J7.5BTA	DP47	2344041M	DIODE 1SS254TA/1SS270TA
DK66	2334324M	ZENER DIODE RD36E TAPE (B3) SI 500MW 36V	DP48	2348123M	ZENER MTZJ-6.2C TA
DK67	2334324M	ZENER DIODE RD36E TAPE (B3) SI 500MW 36V	DP49	2344041M	DIODE 1SS254TA/1SS270TA
DK70	2348142M	ZENER MTZ-J7.5BTA	DP50	CH02673R	LED SM3517F6T (GREEN)
DL01	2348142M	ZENER MTZ-J7.5BTA	DP51	2334304M	ZENER RD30E (B3 T2/TP/TA) SI 5MA 30.51V
DL10	2344041M	DIODE 1SS254TA/1SS270TA	DV02	2339782R	DIODE.CHIP DAN202UT106(80V)
DL10	2344041M	DIODE 1SS254TA/1SS270TA	DY01	2344041M	DIODE 1SS254TA/1SS270TA
DL11	2344041M	DIODE 1SS254TA/1SS270TA	DY02	2344041M	DIODE 1SS254TA/1SS270TA
DL12	2344041M	DIODE 1SS254TA/1SS270TA	DY03	CH02001M	DIODE 1SR139-400
DL13	2344041M	DIODE 1SS254TA/1SS270TA	DY04	CH02001M	DIODE 1SR139-400
DL14	2344041M	DIODE 1SS254TA/1SS270TA	DY05	2344041M	DIODE 1SS254TA/1SS270TA
DL15	2344041M	DIODE 1SS254TA/1SS270TA	DY06	2339801M	ZENER HZS-2 TAPE (B1) SI 400MW 2.0V
DL16	2344041M	DIODE 1SS254TA/1SS270TA	DY07	2339782R	DIODE.CHIP DAN202UT106(80V)
DL17	2344041M	DIODE 1SS254TA/1SS270TA	DY08	CC10521R	DIODE
DL20	2348142M	ZENER MTZ-J7.5BTA	DY09	2344041M	DIODE 1SS254TA/1SS270TA
DL21	2348142M	ZENER MTZ-J7.5BTA	DY12	2339782R	DIODE.CHIP DAN202UT106(80V)
DL22	2348142M	ZENER MTZ-J7.5BTA	DY13	2344041M	DIODE 1SS254TA/1SS270TA
DL23	2348142M	ZENER MTZ-J7.5BTA	DY15	CC10521R	DIODE
DL24	2348142M	ZENER MTZ-J7.5BTA	DY16	CC10521R	DIODE
DL25	2348142M	ZENER MTZ-J7.5BTA	DY17	CC10521R	DIODE
DL26	2348142M	ZENER MTZ-J7.5BTA	DY18	CC10521R	DIODE

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
DY23	2348193M	ZENER DIODE MTZJ-12C TA	IV02	CK38701U	IC UPD64084GC-8EA-A
			IV03	CK37053R	RESET IC BD4727G
		FUSES, PROTECTORS	IV04	CK07631R	DIGITAL MONOLITHIC IC (TC90A45F)
			IV06	CK35442R	MM1503XNRE
⚠FP01	FN00372	FUSE 51MS 040 L 125V 4A	IV07	CK35441R	ANALOG MONOLITHIC IC(MM1501)
⚠EK01	AZ00894M	PROTECTOR 0491002.NRT1-	IV08	CK07923U	IC TA1270BF
⚠EP01	AZ00899M	PROTECTOR 0491007.NRT1-	IV09	CK35442R	MM1503XNRE
⚠EP02	AZ00896M	PROTECTOR 0491003.NRT1-	IV10	CK35441R	ANALOG MONOLITHIC IC(MM1501)
			IV12	CK07923U	IC TA1270BF
		SPARK GAPS	IY01	CP04232	ANALOG MONOLITHIC IC BA033T
			IY02	CP06542F	IC REG.(SI-3050C)
⚠G801	CJ00071R	SPARK GAP 1.5KV	IY03	CK37191R	MONO IC SI-3018LSA-TL
⚠G802	CJ00071R	SPARK GAP 1.5KV	IY04	CK38711U	IC TA1360AFG(HIT)
⚠G851	CJ00071R	SPARK GAP 1.5KV	IY05	CK50121R	IC CD4053BPWR
⚠G852	CJ00071R	SPARK GAP 1.5KV	IY06	CP05163S	IC SI-3090F(LF1111)
⚠G8A1	CJ00071R	SPARK GAP 1.5KV	IY07	CP05163S	IC SI-3090F(LF1111)
⚠G8A2	CJ00071R	SPARK GAP 1.5KV			
⚠GF01	CJ00072R	SPARK GAP 2.5KV			**COILS**
⚠GF02	CJ00072R	SPARK GAP 2.5KV			
			LP42	BH00697R	FILTER COIL 100UH
		COMPOUDS COMPONENTS	LP52	BH00697R	FILTER COIL 100UH
			LP53	BH00697R	FILTER COIL 100UH
HJ01	BE00303R	CHIP LC FILTER MEM2012T50R0	LP54	BH00697R	FILTER COIL 100UH
HJ02	BE00303R	CHIP LC FILTER MEM2012T50R0	LV01	BA00892R	LBC2518 CHIP COIL 47UH
HJ03	BE00303R	CHIP LC FILTER MEM2012T50R0	LV02	BH00697R	FILTER COIL 100UH
HM01	CZ01171	RC RECEIVER	LV03	BH00697R	FILTER COIL 100UH
HM02	CZ01161	RC RECEIVER	LV04	BH00697R	FILTER COIL 100UH
U301	HC00495	FE-V0-A32FT	LV05	BH00697R	FILTER COIL 100UH
U302	HC00504	FE-VO-A69FT	LV06	2123781R	FILTER COIL 100UH(EL0607)
⚠U901	HA0131X	POWER UNIT DP4X-DM_24W	LV07	2123781R	FILTER COIL 100UH(EL0607)
⚠UFPK	AZ00165	CRX F-PACK MAYLAYSIA	LV08	2123781R	FILTER COIL 100UH(EL0607)
UKDG	CS00931	DCU UNIT	LV09	BH00697R	FILTER COIL 100UH
UY01	CS00627	FLEX CONV. UNIT	LV10	BH00697R	FILTER COIL 100UH
			LV12	BA00894R	LBC2518 CHIP COIL 100UH
		INTEGRATED CIRCUITS	LV13	BA00894R	LBC2518 CHIP COIL 100UH
			LV15	BH01851	7312H TYPE COIL 100UH
I002	CK39301R	IC MM1096AFFE	LV16	2125797N	FILT.COIL(LHL08 10UH)
I003	CK37051R	ANALOG MONOLITHIC IC(BD4729G)	LY01	BA00892R	LBC2518 CHIP COIL 47UH
I004	CK50611U	M306V7MJ-050FP	LY04	BH00697R	FILTER COIL 100UH
I005	CK50121R	IC CD4053BPWR	LY05	BA00892R	LBC2518 CHIP COIL 47UH
I006	CK04681R	DIGITAL MONOLITHIC IC (DS14C232CM)	LY06	BA00892R	LBC2518 CHIP COIL 47UH
I007	CK39652R	DIGITAL MONOLITHIC IC (BR24L32FJ-WE2)	LY07	BA00892R	LBC2518 CHIP COIL 47UH
I009	CK50111R	IC SN74HCT245PWR	LY08	2125811N	FILT.COIL(LHL08 100UH)
I010	CK50121R	IC CD4053BPWR	LY09	BH01342M	COIL FERRITE BEADS 2.3UH
I013	CK37216R	MONO IC TK11133CSCL	LY11	BH00228R	COIL 332K-1T7608A
I302	CK37781R	TA1370FG	L001	BZ05572	HORIZONTAL LINEARITY COIL 14UH
I401	CK39891R	MM1631XJBE	L002	BZ05571	HORIZONTAL LINEARITY COIL 9UH
I402	CK39881U	MM1630AQ	L003	BH00679R	COIL 4.7UH
I403	CP05163F	IC SI-3090F	L007	BH00678R	COIL 3.9UH
I404	CK37162R	MONO IC SI-8033JD	L008	BH00679R	COIL 4.7UH
I406	CK38377R	DIGITAL MONO IC SI-3090KM	L009	BH00685R	COIL 12UH
I501	CK50001U	AN15865A	L011	BH00679R	COIL 4.7UH
I502	CK50001U	AN15865A	L013	BH00675R	COIL 2.2UH
I503	CK34991R	SN74ACT14PWR TSSO	L017	BH00676R	COIL 2.7UH
I601	CZ00761U	IC LA7846N	L303	BH00697R	FILTER COIL 100UH
IA01	CK38621R	IC NJM1160M-TE1	L304	BH00678R	COIL 3.9UH
IA02	CP08091	ANALOG MONOLITHIC IC (TA8258H)	L305	BH00683R	COIL 8.2UH(FLR50)
IB01	CP07801U	ANALOG MONOLITHIC IC (TA1317AN)	L307	BH00682R	COIL 6.8UH
IB02	2362606	IC NJM4558D	L401	BH00683R	COIL 8.2UH(FLR50)
IB03	CP05163S	IC SI-3090F(LF1111)	L402	BH00677R	COIL 3.3UH
⚠IH01	CP07091	IC M62501P	L405	BH00697R	FILTER COIL 100UH
IH02	CP04234	IC BA09T	L406	BH00679R	COIL 4.7UH
IJ01	CK39656R	DIGITAL MONOLITHIC IC (BR24L02FJ-WE2)	L407	BH00676R	COIL 2.7UH
IJ03	CK39811U	SII9993CTG100	L503	BH00685R	COIL 12UH
IJ04	CK32011R	IC TC74HC151AF	L504	BH00683R	COIL 8.2UH(FLR50)
IJ05	CK39821R	PCM1754DBQR	L507	BH00675R	COIL 2.2UH
IJ06	CK07141R	ANALOG MONO. IC (BA4558F-E2)	L508	BH00697R	FILTER COIL 100UH
IK01	CP02411	ANALOG MONOLITHIC IC KIA7805PI	L509	BH00671R	COIL 1.0UH
IK02	CP05011R	IC PST994D-T	L511	BH00697R	FILTER COIL 100UH
IK40	CZ01142	IC STK394-250	L603	2125797N	FILT.COIL(LHL08 10UH)
IK41	CZ01142	IC STK394-250	L604	2125811N	FILT.COIL(LHL08 100UH)
⚠IP01	CP08451U	MCZ3001DB	L703	BH01341M	COIL FERRITE BEADS 0.8UH
⚠IP02	CP08261U	IC H11A817B-300W	L704	BH00697R	FILTER COIL 100UH
⚠IP03	CP08461U	EK1115	L705	BH01341M	COIL FERRITE BEADS 0.8UH
IV01	CK37192R	MONO IC SI-3025LSA-TL	L801	BH00697R	FILTER COIL 100UH

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
L802	BH00697R	FILTER COIL 100UH	ERG2	EF08272	CON.06PSCN-SCN1007-26-470
L803	2125821N	COIL LHL08 560UH	⚠E12B	see page 178	DEFLECTION YOKE
L804	BH01342M	COIL FERRITE BEADS 2.3UH	⚠E12G	see page 178	DEFLECTION YOKE
L805	BM00289R	FILTER BLM18BD471SN1D	⚠E12R	see page 178	DEFLECTION YOKE
L806	BM00289R	FILTER BLM18BD471SN1D	⚠E2B	EZ01861	2004 PRT ANODE COVER
L851	BM00289R	FILTER BLM18BD471SN1D	⚠E2G	EZ01861	2004 PRT ANODE COVER
L852	BM00289R	FILTER BLM18BD471SN1D	⚠E2R	EZ01861	2004 PRT ANODE COVER
L853	BH00683R	COIL 8.2UH(FLR50)	⚠E999	EV00558	COD VM0284-192-C-NON Pb (AC CORD)
L854	BM00289R	FILTER BLM18BD471SN1D	⚠ESF	2958151	CONNECTOR RE01X-X3239A901
L855	BM00289R	FILTER BLM18BD471SN1D	⚠N131	NA53623	SCC LENS FIX METAL
L856	BH00697R	FILTER COIL 100UH	⚠N134	4491978	PRT METAL
L8A1	BH00697R	FILTER COIL 100UH	N403	MA01272	HEAT SINK SPTE H=25
L8A2	2125797N	FILT.COIL(LHL08 10UH)	N403N	4520883	3*12 SCREW WITH WASHER
L8A3	BH01341M	COIL FERRITE BEADS 0.8UH	N601	MA01781	HEAT SINK (V) DP4X
L8A4	BH01341M	COIL FERRITE BEADS 0.8UH	N602	4520883	3*12 SCREW WITH WASHER
L8A5	BH01342M	COIL FERRITE BEADS 2.3UH	N701	MA01661	H OUT HEAT SINK DP3X
L8A6	2125806N	FILT.COIL(LHL08 47UH)	N702	4520883	3*12 SCREW WITH WASHER
L8A7	2125806N	FILT.COIL(LHL08 47UH)	N801	3763751	SK BINDER
LA01	2125811N	FILT.COIL(LHL08 100UH)	N803	4340676	HEATSINK A6MM
LA02	BH01341M	COIL FERRITE BEADS 0.8UH	N803N	4520883	3*12 SCREW WITH WASHER
LB01	2125803N	FILT.COIL(LHL08 27UH)	N853	4340676	HEATSINK A6MM
LE04	2125806N	FILT.COIL(LHL08 47UH)	N853N	4520883	3*12 SCREW WITH WASHER
LE07	2125803N	FILT.COIL(LHL08 27UH)	N8A3	4340676	HEATSINK A6MM
LE54	2125806N	FILT.COIL(LHL08 47UH)	N8A3N	4520883	3*12 SCREW WITH WASHER
LE57	2125806N	FILT.COIL(LHL08 47UH)	NA02	MA01413	AUDIO HEAT SINK DP3K
LEA4	2125811N	FILT.COIL(LHL08 100UH)	NA02	MA01414	AUDIO HEAT SINK DP38
LEA7	2125806N	FILT.COIL(LHL08 47UH)	NA02N	4520883	3*12 SCREW WITH WASHER
LH01	BH01341M	COIL FERRITE BEADS 0.8UH	NB01	MD09081	DEFLECTION SUB PWB SHIELD COVER DP4X
LH03	BH01341M	COIL FERRITE BEADS 0.8UH	NCPTB	MD07623	CPT PWB SHIELD DP3X SPTE
⚠LH06	2125797N	FILT.COIL(LHL08 10UH)	NCPTG	MD07623	CPT PWB SHIELD DP3X SPTE
LJ03	2771893	FERITE BEADS CORE (005)	NCPTR	MD07623	CPT PWB SHIELD DP3X SPTE
LJ04	2771893	FERITE BEADS CORE (005)	NE06	MA01272	HEAT SINK SPTE H=25
LJ05	BH01342M	COIL FERRITE BEADS 2.3UH	NE06N	4520883	3*12 SCREW WITH WASHER
LJ06	2123781R	FILTER COIL 100UH(EL0607)	NE07	MA01272	HEAT SINK SPTE H=25
LJ07	2123781R	FILTER COIL 100UH(EL0607)	NE07N	4520883	3*12 SCREW WITH WASHER
LJ08	BA00892R	LBC2518 CHIP COIL 47UH	NE56	MA01272	HEAT SINK SPTE H=25
LJ09	BH00697R	FILTER COIL 100UH	NE56N	4520883	3*12 SCREW WITH WASHER
LJ10	BH00692R	COIL 39UH	NE57	MA01272	HEAT SINK SPTE H=25
LJ12	BH00691R	COIL 33UH	NE57N	4520883	3*12 SCREW WITH WASHER
LJ13	BH00691R	COIL 33UH	NEA6	MA01272	HEAT SINK SPTE H=25
LJ14	BE00412R	3218 CHIP LC FILTER	NEA6N	4520883	3*12 SCREW WITH WASHER
LK01	BE00412R	3218 CHIP LC FILTER	NEA7	MA01272	HEAT SINK SPTE H=25
LK02	2123107M	LAL02 AXIAL COIL 22UH-K	NEA7N	4520883	3*12 SCREW WITH WASHER
LK04	BA00894R	LBC2518 CHIP COIL 100UH	NH01	MA01592	H.V.OUT HEAT SINK DP2X-2 A1100P-H14
LK06	BA00894R	LBC2518 CHIP COIL 100UH	NH02	4520883	3*12 SCREW WITH WASHER
LK07	BA00892R	LBC2518 CHIP COIL 47UH	NH11	NJ08941	DP4X FBT HOLDER PS 94V-0
LL01	BH00697R	FILTER COIL 100UH	NH12	4519505	3*16 B-TITE SCREW
LP20	BH00697R	FILTER COIL 100UH	NK01	MA01272	HEAT SINK SPTE H=25
LP30	BA00894R	LBC2518 CHIP COIL 100UH	NK02	MA01272	HEAT SINK SPTE H=25
LP31	BA00894R	LBC2518 CHIP COIL 100UH	NK03	4520883	3*12 SCREW WITH WASHER
LP33	2123781R	FILTER COIL 100UH(EL0607)	NK04	4520883	3*12 SCREW WITH WASHER
LP34	BH00697R	FILTER COIL 100UH	NK40	MA01625	CONV.HEAT SINK DP4X A1100P-H14
LP35	BH00697R	FILTER COIL 100UH	NK41	MA01625	CONV.HEAT SINK DP4X A1100P-H14
LP36	BH00697R	FILTER COIL 100UH	NK46	4520885	3*16 SCREW WITH WASHER
LP37	BH00697R	FILTER COIL 100UH	NPD1	MA01761	HEAT SINK DP4X(B)
LP38	BH00697R	FILTER COIL 100UH	NPD3	MA01751	HEAT SINK DP4X(A)
LP39	BH00697R	FILTER COIL 100UH	NPF1	2721351	FUSE HOLDER
			NPN1	4520881	M3*8 SCREW WITH WASHER
		MISCELLANEAOUS	NPN2	4520881	M3*8 SCREW WITH WASHER
			NPN3	4520881	M3*8 SCREW WITH WASHER
*	UE23391	RED PRT ASSY (51")	NPN4	4520881	M3*8 SCREW WITH WASHER
*	UE23392	GREEN PRT ASSY (51")	NPQ1	MA01751	HEAT SINK DP4X(A)
*	UE23393	BLUE PRT ASSY (51")	NPQ2	MA01751	HEAT SINK DP4X(A)
	see note on page 184	RED PRT ASSY (57")	NY01	MA01272	HEAT SINK SPTE H=25
*		GREEN PRT ASSY (57")	NY01N	4520883	3*12 SCREW WITH WASHER
*		BLUE PRT ASSY (57")	P801	ED03173	3P MINI CONNE.PLUG TV-50P-03V3
			P802	2661756	1P PLUG PIN WITH BASE
			P851	ED03173	3P MINI CONNE.PLUG TV-50P-03V3
J002	EY01543	JACK PJX-YKF42-8057N	P852	2661756	1P PLUG PIN WITH BASE
J401	ES00581	JACK LAF5120-0403F	U401	GK00911	SPEAKER - 5CM
J402	ES00351	JACK LAP5120-0101F US9P Y/C3P	U402	GK01291	SPEAKER - 13CM
JM01	ER00961	JACK LAP5030-0501F S+3P	U403	GK00911	SPEAKER - 5CM
⚠E801	EY01353	SOCKET CVT3248-1298T	U404	GK01291	SPEAKER - 13CM
⚠E851	EY01353	SOCKET CVT3248-1298T			
⚠E8A1	EY01353	SOCKET CVT3248-1298T			
EANT	HP00773	ANTENNA SWITCH			
EFI1	2974106S	4P CONNE. L=910			
EGB1	2909684	2.0MM PITCH 9J BOARD-IN CONNEC. L=330MM			
EGB2	EF08272	CON.06PSCN-SCN1007-26-470			
ERG1	2909654	2.0MM PITCH 8J BOARD-IN CONNEC. L=330MM			

CH 2

CH 3

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
PDD1	ED03211	14P 2.5MM PITCH CONNECTOR TAC-L14X-A3	Q010	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
PDF1	ED01596U	PLUG CP-04BP5R0VU-TBL#2,3N	Q012	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
PDG	ED04541U	CONNECTOR	Q014	2316244R	TRS.CHIP 2SC4081 R
PDG	ED04541U	CONNECTOR	Q015	2316244R	TRS.CHIP 2SC4081 R
PDS1	ED01475U	TWG-X 9P B-B CONNECTOR	Q016	2316244R	TRS.CHIP 2SC4081 R
PDS2	ED01473U	PLUG 13BP1R2HUTWGP-A1	Q017	2316244R	TRS.CHIP 2SC4081 R
PDS3	ED01473U	PLUG 13BP1R2HUTWGP-A1	Q018	2316244R	TRS.CHIP 2SC4081 R
PDSE	ED00389	PLUG 10P WITH LOCK	Q019	2316244R	TRS.CHIP 2SC4081 R
PFC1	ED01782	22P PLUG PIN	Q021	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
PFC2	ED01782	22P PLUG PIN	Q023	2316244R	TRS.CHIP 2SC4081 R
PFH1	2959059	PLUG PH PIN POST 10P	Q024	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
PFH2	2902261	PLUG PIN SUB MINI 2P	Q026	2316244R	TRS.CHIP 2SC4081 R
PFI1	2902243	PLUG PIN SUB MINI 4P	Q028	2316244R	TRS.CHIP 2SC4081 R
PFS	ED02832	2.5MM PITCH 13P XA PLUG (H)	Q030	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
PFS1	ED00393	PLUG 13P LOCK 2.5MM JST	Q031	2316244R	TRS.CHIP 2SC4081 R
PFS2	ED00391	PLUG 11P WITH LOCK	Q032	2316244R	TRS.CHIP 2SC4081 R
PFT1	ED02829	2.5MM PITCH 11P XA PLUG (H)	Q036	CA01011R	TRS.CHIP 2SK3018
PGV	2661751	2P PLUG PIN WITH BASE	Q037	CA01011R	TRS.CHIP 2SK3018
PHS1	ED03212	15P 2.5MM PITCH CONNECTOR TAC-L15X-A3	Q038	2316244R	TRS.CHIP 2SC4081 R
PHS2	ED03216	20P 2.5MM PITCH CONNECTOR TAC-L20X-A3	Q302	2316244R	TRS.CHIP 2SC4081 R
PJ01	EA01791U	HDMI RECEPTACLE SMT	Q303	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
PJIG	2959058	PINPOST 9P PH	Q304	2316244R	TRS.CHIP 2SC4081 R
PMB	ED01597U	PLUG CP-06BP5R0VU-TBL#3,5N	Q305	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
PMG	ED01597U	PLUG CP-06BP5R0VU-TBL#3,5N	Q306	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
PMR	ED01597U	PLUG CP-06BP5R0VU-TBL#3,5N	Q308	2316244R	TRS.CHIP 2SC4081 R
PMS1	ED04331U	2.54MM PITCH 50P B TO B CONNECTOR SOCKET	Q309	2316244R	TRS.CHIP 2SC4081 R
PPDC	ED00382	PLUG 3P LOCK 2.5MM JST	Q311	2316244R	TRS.CHIP 2SC4081 R
PPDE	2674281	3P B-PLUG PIN	Q313	2316244R	TRS.CHIP 2SC4081 R
PPS1	ED04331U	2.54MM PITCH 50P B TO B CONNECTOR SOCKET	Q314	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
PPS2	ED03203	6P 2.5MM PITCH CONNECTOR TAC-L06X-A3	Q401	2316244R	TRS.CHIP 2SC4081 R
PRV	2661751	2P PLUG PIN WITH BASE	Q402	2316244R	TRS.CHIP 2SC4081 R
PS1	2959058	PINPOST 9P PH	Q403	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
PS2	2959059	PLUG PH PIN POST 10P	Q404	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
PS3	2959055	CONNECTOR-6P(PH)	Q405	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
PSC	2902272	PLUG PIN SUB MINI 12P	Q406	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
PSC	2902272	PLUG PIN SUB MINI 12P	Q407	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
PSN	2661756	1P PLUG PIN WITH BASE	Q408	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
PSP	ED00385	PLUG 6P LOCK 2.5MM JST	Q409	CA00461R	TRS.CHIP 2SD2114K 20V TAPE
PSRT	2902261	PLUG PIN SUB MINI 2P	Q411	CA00461R	TRS.CHIP 2SD2114K 20V TAPE
PTSB	2902261	PLUG PIN SUB MINI 2P	Q416	2316244R	TRS.CHIP 2SC4081 R
PTSG	2902261	PLUG PIN SUB MINI 2P	Q417	2316244R	TRS.CHIP 2SC4081 R
PTSR	2902261	PLUG PIN SUB MINI 2P	Q418	2316244R	TRS.CHIP 2SC4081 R
PTU1	ED03216	20P 2.5MM PITCH CONNECTOR TAC-L20X-A3	Q419	2316244R	TRS.CHIP 2SC4081 R
PTU2	ED03216	20P 2.5MM PITCH CONNECTOR TAC-L20X-A3	Q423	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
PTU2	ED03196	20P 2.5MM PITCH PLUG TAC-L20P-A3	Q424	2316244R	TRS.CHIP 2SC4081 R
PTU3	2661756	1P PLUG PIN WITH BASE	Q425	2316244R	TRS.CHIP 2SC4081 R
PVMB	2902263	PLUG PIN SUB MINI 4P	Q427	2316244R	TRS.CHIP 2SC4081 R
PVMG	2902263	PLUG PIN SUB MINI 4P	Q501	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
PVMR	2902263	PLUG PIN SUB MINI 4P	Q502	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
SK01	FE10332R	SWITCH (TYPE SWP01N01TKSH0636BT)	Q503	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
SM01	FE10402R	PUSH SWITCH SKQNAB	Q504	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
SM02	FE10402R	PUSH SWITCH SKQNAB	Q505	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
SM03	FE10402R	PUSH SWITCH SKQNAB	Q506	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
SM04	FE10402R	PUSH SWITCH SKQNAB	Q604	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ 400MW
SM05	FE10402R	PUSH SWITCH SKQNAB	Q701	2328102	TRS.FN-521
SM06	FE10402R	PUSH SWITCH SKQNAB	Q703	2324321M	TRANSISTOR 2SC2610-05
SM07	FE10402R	PUSH SWITCH SKQNAB	Q706	CF01421R	TRS. KTC3198 (GR) TAPE
SM08	FE10402R	PUSH SWITCH SKQNAB	Q709	2326216	TRS. 2SC3116 (S/T)
SM09	FE10402R	PUSH SWITCH SKQNAB	Q718	CF01421R	TRS. KTC3198 (GR) TAPE
			⚠Q777	CF03031F	TRS. 2SC6012000LT (HORIZ OUT)
			Q801	2327471F	TRS.2SC3950 (HIT D/E)
W801	EK00061	WIRE (PROCESSED)	Q802	CF01421R	TRS. KTC3198 (GR) TAPE
⚠W802	2692463	CONNECTOR FOR FOCUS	Q803	2312372F	TRS-2SC3942
⚠W851	EK00061	WIRE (PROCESSED)	Q804	2312773F	TRS-2SA1546(2)M/L
⚠W852	2692463	CONNECTOR FOR FOCUS	Q805	2312372F	TRS-2SC3942
⚠W8A1	EK00062	WIRE (PROCESSED) FOR SCREEN	Q806	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ 400MW
⚠W8A2	2692464	CO-01C-N0R0-821FOCUS	Q812	2312372F	TRS-2SC3942
			Q851	2327471F	TRS.2SC3950 (HIT D/E)
		TRANSISTORS	Q852	CF01421R	TRS. KTC3198 (GR) TAPE
			Q853	2312372F	TRS-2SC3942
Q003	2316244R	TRS.CHIP 2SC4081 R	Q854	2312773F	TRS-2SA1546(2)M/L
Q005	2316244R	TRS.CHIP 2SC4081 R	Q855	2312372F	TRS-2SC3942
Q006	2316244R	TRS.CHIP 2SC4081 R	Q856	CF01421R	TRS. KTC3198 (GR) TAPE
Q007	2316244R	TRS.CHIP 2SC4081 R	Q862	2312372F	TRS-2SC3942
Q008	2316244R	TRS.CHIP 2SC4081 R	Q8A1	2327471F	TRS.2SC3950 (HIT D/E)

PRODUCT SERVICE NOTE: Components marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

SYMBOL NO.	PART NO.	PART DESCRIPTION
Q8A6	CF02771R	TRS. KTA1270
Q8A7	CF01421R	TRS. KTC3198 (GR) TAPE
Q8A8	CF01421R	TRS. KTC3198 (GR) TAPE
Q8C2	2312372F	TRS-2SC3942
QA01	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QA02	2316244R	TRS.CHIP 2SC4081 R
QA03	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QA04	2316244R	TRS.CHIP 2SC4081 R
QA05	2316244R	TRS.CHIP 2SC4081 R
QA06	2316244R	TRS.CHIP 2SC4081 R
QA07	CA00461R	TRS.CHIP 2SD2114K 20V TAPE
QA08	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QA09	CA00461R	TRS.CHIP 2SD2114K 20V TAPE
QA10	2316244R	TRS.CHIP 2SC4081 R
QA11	2316244R	TRS.CHIP 2SC4081 R
QB04	CF01421R	TRS. KTC3198 (GR) TAPE
QB05	CF01421R	TRS. KTC3198 (GR) TAPE
QE01	CF01421R	TRS. KTC3198 (GR) TAPE
QE02	CF01421R	TRS. KTC3198 (GR) TAPE
QE03	CF02771R	TRS. KTA1270
QE06	2315381	TRS. 2SA1837
QE07	2315391	TRS. 2SC4793
QE08	2326821R	TRANSISTOR 2SA1371 (E/F)
QE51	CF01421R	TRS. KTC3198 (GR) TAPE
QE52	CF01421R	TRS. KTC3198 (GR) TAPE
QE53	CF02771R	TRS. KTA1270
QE56	2315381	TRS. 2SA1837
QE57	2315391	TRS. 2SC4793
QEA1	CF01421R	TRS. KTC3198 (GR) TAPE
QEA2	CF01421R	TRS. KTC3198 (GR) TAPE
QEA3	CF02771R	TRS. KTA1270
QEA6	2315381	TRS. 2SA1837
QEA7	2315391	TRS. 2SC4793
QEA8	2326821R	TRANSISTOR 2SA1371 (E/F)
QF01	CF00821F	TRS. 2SC4686A 1200V
⚠QH01	CF01583F	TRS. 2SK2771-01R-F168R (HV OUT)
QH02	CF02781R	TRS. KTC200YAT
QH03	2326811R	TRANSISTOR 2SC3468 (E/F)
QH04	CF02781R	TRS. KTC200YAT
QJ03	2316244R	TRS.CHIP 2SC4081 R
QJ04	2316244R	TRS.CHIP 2SC4081 R
QJ05	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QJ06	2316244R	TRS.CHIP 2SC4081 R
QJ07	2316244R	TRS.CHIP 2SC4081 R
QJ08	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QJ09	2316244R	TRS.CHIP 2SC4081 R
QJ10	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QJ11	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QJ12	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QJ27	CA01011R	TRS.CHIP 2SK3018
QJ28	CA01011R	TRS.CHIP 2SK3018
QJ31	2316244R	TRS.CHIP 2SC4081 R
QK01	2312171	TRS. 2SC3852
QK02	CF02771R	TRS. KTA1270
QK03	CF02771R	TRS. KTA1270
QK04	CF01421R	TRS. KTC3198 (GR) TAPE
QL10	CF02771R	TRS. KTA1270
QL11	CF02771R	TRS. KTA1270
QL12	CF02771R	TRS. KTA1270
QL13	CF02771R	TRS. KTA1270
QL14	CF02771R	TRS. KTA1270
QL15	CF02771R	TRS. KTA1270
QL16	CF02771R	TRS. KTA1270
QL17	CF02771R	TRS. KTA1270
QM01	CF01421R	TRS. KTC3198 (GR) TAPE
QM03	CF01421R	TRS. KTC3198 (GR) TAPE
QM04	CF01421R	TRS. KTC3198 (GR) TAPE
QM05	CF01421R	TRS. KTC3198 (GR) TAPE
QM09	CF01421R	TRS. KTC3198 (GR) TAPE
QN01	CF01421R	TRS. KTC3198 (GR) TAPE
QN02	CF02771R	TRS. KTA1270
QN03	CF01421R	TRS. KTC3198 (GR) TAPE
QN04	CF01421R	TRS. KTC3198 (GR) TAPE
QN05	CF01421R	TRS. KTC3198 (GR) TAPE
⚠QP01	CF03021F	TRS. F13F50VX3
⚠QP02	CF03021F	TRS. F13F50VX3
QP04	2312172F	TRS. 2SD2375-P/Q(LT)
QP05	CF02281R	TRS. 2SA821S
QV01	2316244R	TRS.CHIP 2SC4081 R
QV02	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QV03	2316244R	TRS.CHIP 2SC4081 R
QV04	2316244R	TRS.CHIP 2SC4081 R
QV05	2316244R	TRS.CHIP 2SC4081 R
QV07	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QV08	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QV09	2316244R	TRS.CHIP 2SC4081 R
QV10	2316244R	TRS.CHIP 2SC4081 R
QV11	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QV12	2316244R	TRS.CHIP 2SC4081 R
QV13	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QV15	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QV16	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QV17	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QV18	2316244R	TRS.CHIP 2SC4081 R
QV19	2316244R	TRS.CHIP 2SC4081 R
QV20	2316244R	TRS.CHIP 2SC4081 R
QV21	2316244R	TRS.CHIP 2SC4081 R
QV22	2316244R	TRS.CHIP 2SC4081 R
QV25	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QV26	2316244R	TRS.CHIP 2SC4081 R
QV27	2316244R	TRS.CHIP 2SC4081 R
QV28	2316244R	TRS.CHIP 2SC4081 R
QV29	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QV30	2316244R	TRS.CHIP 2SC4081 R
QV32	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QV33	2316244R	TRS.CHIP 2SC4081 R
QV34	2316244R	TRS.CHIP 2SC4081 R
QV35	2316244R	TRS.CHIP 2SC4081 R
QV36	2316244R	TRS.CHIP 2SC4081 R
QV38	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QV39	2316244R	TRS.CHIP 2SC4081 R
QV40	2316244R	TRS.CHIP 2SC4081 R
QV41	2316244R	TRS.CHIP 2SC4081 R
QV42	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QV43	2316244R	TRS.CHIP 2SC4081 R
QV44	2316244R	TRS.CHIP 2SC4081 R
QV45	2316244R	TRS.CHIP 2SC4081 R
QV46	2316244R	TRS.CHIP 2SC4081 R
QV47	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QV48	2316244R	TRS.CHIP 2SC4081 R
QV49	2316244R	TRS.CHIP 2SC4081 R
QV50	CA01011R	TRS.CHIP 2SK3018
QV51	CA01011R	TRS.CHIP 2SK3018
QV52	2316244R	TRS.CHIP 2SC4081 R
QV53	2316244R	TRS.CHIP 2SC4081 R
QV54	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QV55	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QV56	2316244R	TRS.CHIP 2SC4081 R
QV57	2316244R	TRS.CHIP 2SC4081 R
QY01	2316244R	TRS.CHIP 2SC4081 R
QY02	2316244R	TRS.CHIP 2SC4081 R
QY03	2316244R	TRS.CHIP 2SC4081 R
QY07	2316244R	TRS.CHIP 2SC4081 R
QY09	2316244R	TRS.CHIP 2SC4081 R
QY10	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY11	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY12	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY13	2316244R	TRS.CHIP 2SC4081 R
QY14	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY15	2316244R	TRS.CHIP 2SC4081 R
QY16	2316244R	TRS.CHIP 2SC4081 R
QY17	2316244R	TRS.CHIP 2SC4081 R
QY18	2316244R	TRS.CHIP 2SC4081 R
QY19	2316244R	TRS.CHIP 2SC4081 R
QY20	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY21	2316244R	TRS.CHIP 2SC4081 R
QY22	2316244R	TRS.CHIP 2SC4081 R
QY23	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY24	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY25	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE

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SYMBOL NO.	PART NO.	PART DESCRIPTION
QY26	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY27	2316244R	TRS.CHIP 2SC4081 R
QY28	2316244R	TRS.CHIP 2SC4081 R
QY29	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY32	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY34	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY39	2316244R	TRS.CHIP 2SC4081 R
QY40	2316244R	TRS.CHIP 2SC4081 R
QY41	2316244R	TRS.CHIP 2SC4081 R
QY42	2316244R	TRS.CHIP 2SC4081 R
QY46	2316244R	TRS.CHIP 2SC4081 R
QY47	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY48	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY49	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY50	CF02771R	TRS. KTA1270
QY51	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY52	CF02771R	TRS. KTA1270
QY53	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY54	CF02771R	TRS. KTA1270
QY55	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY56	CF02771R	TRS. KTA1270
QY57	2316244R	TRS.CHIP 2SC4081 R
QY58	CA00122R	TRS.CHIP 2SA1576A(R)50V TAPE
QY59	2316244R	TRS.CHIP 2SC4081 R
QY60	2316244R	TRS.CHIP 2SC4081 R
QY62	CF02771R	TRS. KTA1270
QY63	2316244R	TRS.CHIP 2SC4081 R
		RESISTORS
R021	0790037R	RES.CHIP 1/16W 1.0K OHM
R028	0790064R	RES.CHIP 1/16W 100K OHM
R031	0790046R	RES.CHIP 1/16W 4.7K OHM
R032	0790028R	RES.CHIP 1/16W 220 OHM
R034	0790051R	RES.CHIP 1/16W 10K OHM
R037	0790064R	RES.CHIP 1/16W 100K OHM
R040	0790037R	RES.CHIP 1/16W 1.0K OHM
R043	0790046R	RES.CHIP 1/16W 4.7K OHM
R045	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R047	0790037R	RES.CHIP 1/16W 1.0K OHM
R049	0790064R	RES.CHIP 1/16W 100K OHM
R050	0790047R	RES.CHIP 1/16W 5.6K OHM
R051	0790024R	RES.CHIP 1/16W 100 OHM
R052	0790069R	RES.CHIP 1/16W 270K OHM
R054	0790051R	RES.CHIP 1/16W 10K OHM
R055	0790051R	RES.CHIP 1/16W 10K OHM
R056	0790051R	RES.CHIP 1/16W 10K OHM
R057	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R058	0790051R	RES.CHIP 1/16W 10K OHM
R060	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R061	0790042R	RES.CHIP 1/16W 2.2K OHM
R062	0790077R	RES.CHIP 1/16W 1.0M OHM
R063	0790024R	RES.CHIP 1/16W 100 OHM
R064	0790033R	RES.CHIP 1/16W 470 OHM
R065	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R067	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R068	0790059R	RES.CHIP 1/16W 47K OHM
R069	0790059R	RES.CHIP 1/16W 47K OHM
R070	0790047R	RES.CHIP 1/16W 5.6K OHM
R071	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R072	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R073	0790037R	RES.CHIP 1/16W 1.0K OHM
R074	0790042R	RES.CHIP 1/16W 2.2K OHM
R075	0790024R	RES.CHIP 1/16W 100 OHM
R076	0790024R	RES.CHIP 1/16W 100 OHM
R077	0790024R	RES.CHIP 1/16W 100 OHM
R078	0790037R	RES.CHIP 1/16W 1.0K OHM
R079	0790037R	RES.CHIP 1/16W 1.0K OHM
R080	0790037R	RES.CHIP 1/16W 1.0K OHM
R081	0790037R	RES.CHIP 1/16W 1.0K OHM
R082	0790037R	RES.CHIP 1/16W 1.0K OHM
R084	0790024R	RES.CHIP 1/16W 100 OHM
R086	0790024R	RES.CHIP 1/16W 100 OHM
R087	0790024R	RES.CHIP 1/16W 100 OHM
R088	0790038R	RES.CHIP 1/16W 1.2K OHM
R089	0790077R	RES.CHIP 1/16W 1.0M OHM
R090	0790024R	RES.CHIP 1/16W 100 OHM
R091	0790024R	RES.CHIP 1/16W 100 OHM
R092	0790033R	RES.CHIP 1/16W 470 OHM
R094	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R100	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R101	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R102	0790051R	RES.CHIP 1/16W 10K OHM
R104	0790024R	RES.CHIP 1/16W 100 OHM
R105	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R108	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R109	0790059R	RES.CHIP 1/16W 47K OHM
R111	0790037R	RES.CHIP 1/16W 1.0K OHM
R113	0790024R	RES.CHIP 1/16W 100 OHM
R114	0790059R	RES.CHIP 1/16W 47K OHM
R115	0790059R	RES.CHIP 1/16W 47K OHM
R117	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R118	0790024R	RES.CHIP 1/16W 100 OHM
R119	0790051R	RES.CHIP 1/16W 10K OHM
R120	0790024R	RES.CHIP 1/16W 100 OHM
R121	0790024R	RES.CHIP 1/16W 100 OHM
R122	0790051R	RES.CHIP 1/16W 10K OHM
R123	0790024R	RES.CHIP 1/16W 100 OHM
R124	0790037R	RES.CHIP 1/16W 1.0K OHM
R126	0790037R	RES.CHIP 1/16W 1.0K OHM
R127	0790037R	RES.CHIP 1/16W 1.0K OHM
R128	0790037R	RES.CHIP 1/16W 1.0K OHM
R130	0790051R	RES.CHIP 1/16W 10K OHM
R131	0790024R	RES.CHIP 1/16W 100 OHM
R134	0790024R	RES.CHIP 1/16W 100 OHM
R135	0790051R	RES.CHIP 1/16W 10K OHM
R137	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R138	0790051R	RES.CHIP 1/16W 10K OHM
R139	0790037R	RES.CHIP 1/16W 1.0K OHM
R140	0790024R	RES.CHIP 1/16W 100 OHM
R141	0790044R	RES.CHIP 1/16W 3.3K OHM
R143	0790024R	RES.CHIP 1/16W 100 OHM
R145	0790037R	RES.CHIP 1/16W 1.0K OHM
R146	0790037R	RES.CHIP 1/16W 1.0K OHM
R149	0790024R	RES.CHIP 1/16W 100 OHM
R151	0790024R	RES.CHIP 1/16W 100 OHM
R152	0790057R	RES.CHIP 1/16W 33K OHM
R153	0790051R	RES.CHIP 1/16W 10K OHM
R154	0790051R	RES.CHIP 1/16W 10K OHM
R155	0790024R	RES.CHIP 1/16W 100 OHM
R156	0790037R	RES.CHIP 1/16W 1.0K OHM
R157	0790037R	RES.CHIP 1/16W 1.0K OHM
R158	0790024R	RES.CHIP 1/16W 100 OHM
R159	0790055R	RES.CHIP 1/16W 22K OHM
R162	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R163	0790024R	RES.CHIP 1/16W 100 OHM
R167	0790024R	RES.CHIP 1/16W 100 OHM
R170	0790051R	RES.CHIP 1/16W 10K OHM
R171	0790024R	RES.CHIP 1/16W 100 OHM
R172	0790037R	RES.CHIP 1/16W 1.0K OHM
R175	0790059R	RES.CHIP 1/16W 47K OHM
R176	0790051R	RES.CHIP 1/16W 10K OHM
R177	0790037R	RES.CHIP 1/16W 1.0K OHM
R179	0790024R	RES.CHIP 1/16W 100 OHM
R180	0790037R	RES.CHIP 1/16W 1.0K OHM
R181	0790047R	RES.CHIP 1/16W 5.6K OHM
R182	0790059R	RES.CHIP 1/16W 47K OHM
R183	0790059R	RES.CHIP 1/16W 47K OHM
R184	0790037R	RES.CHIP 1/16W 1.0K OHM
R185	0790044R	RES.CHIP 1/16W 3.3K OHM
R186	0790059R	RES.CHIP 1/16W 47K OHM
R187	0790051R	RES.CHIP 1/16W 10K OHM
R189	0790024R	RES.CHIP 1/16W 100 OHM
R190	0790046R	RES.CHIP 1/16W 4.7K OHM
R191	0790037R	RES.CHIP 1/16W 1.0K OHM
R192	0790024R	RES.CHIP 1/16W 100 OHM
R193	0790037R	RES.CHIP 1/16W 1.0K OHM
R194	0790024R	RES.CHIP 1/16W 100 OHM
R196	0790052R	RES.CHIP 1/16W 12K OHM
R197	0790037R	RES.CHIP 1/16W 1.0K OHM

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
R200	0790047R	RES.CHIP 1/16W 5.6K OHM	R290	0790024R	RES.CHIP 1/16W 100 OHM
R201	0790037R	RES.CHIP 1/16W 1.0K OHM	R293	0790047R	RES.CHIP 1/16W 5.6K OHM
R202	0790037R	RES.CHIP 1/16W 1.0K OHM	R294	0790024R	RES.CHIP 1/16W 100 OHM
R203	0790037R	RES.CHIP 1/16W 1.0K OHM	R295	0790024R	RES.CHIP 1/16W 100 OHM
R204	0790037R	RES.CHIP 1/16W 1.0K OHM	R296	0790059R	RES.CHIP 1/16W 47K OHM
R205	0790059R	RES.CHIP 1/16W 47K OHM	R297	0790051R	RES.CHIP 1/16W 10K OHM
R206	0790051R	RES.CHIP 1/16W 10K OHM	R298	0790051R	RES.CHIP 1/16W 10K OHM
R207	0790037R	RES.CHIP 1/16W 1.0K OHM	R2A1	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R208	0790059R	RES.CHIP 1/16W 47K OHM	R2A2	0790037R	RES.CHIP 1/16W 1.0K OHM
R209	0790024R	RES.CHIP 1/16W 100 OHM	R2A3	0790037R	RES.CHIP 1/16W 1.0K OHM
R210	0790051R	RES.CHIP 1/16W 10K OHM	R2A4	0790037R	RES.CHIP 1/16W 1.0K OHM
R211	0790024R	RES.CHIP 1/16W 100 OHM	R2A5	0790024R	RES.CHIP 1/16W 100 OHM
R212	0790046R	RES.CHIP 1/16W 4.7K OHM	R2A6	0790037R	RES.CHIP 1/16W 1.0K OHM
R213	0790046R	RES.CHIP 1/16W 4.7K OHM	R2A7	0790037R	RES.CHIP 1/16W 1.0K OHM
R214	0790032R	RES.CHIP 1/16W 390 OHM	R2A8	0790037R	RES.CHIP 1/16W 1.0K OHM
R215	0790037R	RES.CHIP 1/16W 1.0K OHM	R2A9	0790037R	RES.CHIP 1/16W 1.0K OHM
R216	0790046R	RES.CHIP 1/16W 4.7K OHM	R2C0	0790024R	RES.CHIP 1/16W 100 OHM
R217	0790037R	RES.CHIP 1/16W 1.0K OHM	R2C1	0790024R	RES.CHIP 1/16W 100 OHM
R218	0790024R	RES.CHIP 1/16W 100 OHM	R2C2	0790024R	RES.CHIP 1/16W 100 OHM
R219	0790051R	RES.CHIP 1/16W 10K OHM	R2C3	0790024R	RES.CHIP 1/16W 100 OHM
R220	0790037R	RES.CHIP 1/16W 1.0K OHM	R2C4	0790024R	RES.CHIP 1/16W 100 OHM
R221	0790024R	RES.CHIP 1/16W 100 OHM	R2C8	0790051R	RES.CHIP 1/16W 10K OHM
R222	0790024R	RES.CHIP 1/16W 100 OHM	R2E1	0790059R	RES.CHIP 1/16W 47K OHM
R223	0790024R	RES.CHIP 1/16W 100 OHM	R2E2	0790051R	RES.CHIP 1/16W 10K OHM
R224	0790024R	RES.CHIP 1/16W 100 OHM	R2E3	0790051R	RES.CHIP 1/16W 10K OHM
R225	0790024R	RES.CHIP 1/16W 100 OHM	R2E7	0790059R	RES.CHIP 1/16W 47K OHM
R226	0790024R	RES.CHIP 1/16W 100 OHM	R2F0	0790051R	RES.CHIP 1/16W 10K OHM
R227	0790037R	RES.CHIP 1/16W 1.0K OHM	R2F3	0790051R	RES.CHIP 1/16W 10K OHM
R228	0790037R	RES.CHIP 1/16W 1.0K OHM	R2F6	0790024R	RES.CHIP 1/16W 100 OHM
R229	0790042R	RES.CHIP 1/16W 2.2K OHM	R2G6	0790037R	RES.CHIP 1/16W 1.0K OHM
R230	0790042R	RES.CHIP 1/16W 2.2K OHM	R2G7	0790051R	RES.CHIP 1/16W 10K OHM
R231	0790033R	RES.CHIP 1/16W 470 OHM	R2G8	0790024R	RES.CHIP 1/16W 100 OHM
R232	0790033R	RES.CHIP 1/16W 470 OHM	R2H0	0790037R	RES.CHIP 1/16W 1.0K OHM
R233	0790033R	RES.CHIP 1/16W 470 OHM	R2J0	0790051R	RES.CHIP 1/16W 10K OHM
R234	0790051R	RES.CHIP 1/16W 10K OHM	R2J1	0790051R	RES.CHIP 1/16W 10K OHM
R235	0790052R	RES.CHIP 1/16W 12K OHM	R2J2	0790041R	RES.CHIP 1/16W 1.8K OHM
R236	0790051R	RES.CHIP 1/16W 10K OHM	R2J3	0790041R	RES.CHIP 1/16W 1.8K OHM
R237	0790037R	RES.CHIP 1/16W 1.0K OHM	R2J4	0790041R	RES.CHIP 1/16W 1.8K OHM
R238	0790037R	RES.CHIP 1/16W 1.0K OHM	R2K0	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R239	0790024R	RES.CHIP 1/16W 100 OHM	R2K1	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R240	0790024R	RES.CHIP 1/16W 100 OHM	R2K3	0790037R	RES.CHIP 1/16W 1.0K OHM
R241	0790047R	RES.CHIP 1/16W 5.6K OHM	R2K5	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R242	0790037R	RES.CHIP 1/16W 1.0K OHM	R2K6	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R243	0790037R	RES.CHIP 1/16W 1.0K OHM	R2L0	0790037R	RES.CHIP 1/16W 1.0K OHM
R244	0790037R	RES.CHIP 1/16W 1.0K OHM	R2M8	0790037R	RES.CHIP 1/16W 1.0K OHM
R245	0790037R	RES.CHIP 1/16W 1.0K OHM	R2M9	0790037R	RES.CHIP 1/16W 1.0K OHM
R246	0790037R	RES.CHIP 1/16W 1.0K OHM	R2N0	0790024R	RES.CHIP 1/16W 100 OHM
R247	0790024R	RES.CHIP 1/16W 100 OHM	R2N1	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R248	0790024R	RES.CHIP 1/16W 100 OHM	R2N2	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R249	0790059R	RES.CHIP 1/16W 47K OHM	R2N3	0790024R	RES.CHIP 1/16W 100 OHM
R250	0790037R	RES.CHIP 1/16W 1.0K OHM	R2N4	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R251	0790037R	RES.CHIP 1/16W 1.0K OHM	R2N5	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R252	0790064R	RES.CHIP 1/16W 100K OHM	R2P1	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R253	0790059R	RES.CHIP 1/16W 47K OHM	R304	0790028R	RES.CHIP 1/16W 220 OHM
R254	0790059R	RES.CHIP 1/16W 47K OHM	R305	0790028R	RES.CHIP 1/16W 220 OHM
R255	0790051R	RES.CHIP 1/16W 10K OHM	R306	0790028R	RES.CHIP 1/16W 220 OHM
R256	0790052R	RES.CHIP 1/16W 12K OHM	R308	0790028R	RES.CHIP 1/16W 220 OHM
R257	0790047R	RES.CHIP 1/16W 5.6K OHM	R310	0790037R	RES.CHIP 1/16W 1.0K OHM
R261	0790047R	RES.CHIP 1/16W 5.6K OHM	R311	0790037R	RES.CHIP 1/16W 1.0K OHM
R267	0790059R	RES.CHIP 1/16W 47K OHM	R312	0790037R	RES.CHIP 1/16W 1.0K OHM
R273	0790051R	RES.CHIP 1/16W 10K OHM	R313	0790037R	RES.CHIP 1/16W 1.0K OHM
R274	0790051R	RES.CHIP 1/16W 10K OHM	R315	0790037R	RES.CHIP 1/16W 1.0K OHM
R275	0790024R	RES.CHIP 1/16W 100 OHM	R316	0790042R	RES.CHIP 1/16W 2.2K OHM
R276	0790024R	RES.CHIP 1/16W 100 OHM	R318	0790051R	RES.CHIP 1/16W 10K OHM
R277	0790024R	RES.CHIP 1/16W 100 OHM	R319	0790037R	RES.CHIP 1/16W 1.0K OHM
R278	0790024R	RES.CHIP 1/16W 100 OHM	R320	0790042R	RES.CHIP 1/16W 2.2K OHM
R279	0790024R	RES.CHIP 1/16W 100 OHM	R321	0790051R	RES.CHIP 1/16W 10K OHM
R280	0790024R	RES.CHIP 1/16W 100 OHM	R322	0790045R	RES.CHIP 1/16W 3.9K OHM
R281	0790024R	RES.CHIP 1/16W 100 OHM	R323	0790024R	RES.CHIP 1/16W 100 OHM
R282	0790024R	RES.CHIP 1/16W 100 OHM	R324	0790037R	RES.CHIP 1/16W 1.0K OHM
R283	0790051R	RES.CHIP 1/16W 10K OHM	R325	0790037R	RES.CHIP 1/16W 1.0K OHM
R285	0790024R	RES.CHIP 1/16W 100 OHM	R326	0790044R	RES.CHIP 1/16W 3.3K OHM
R286	0790024R	RES.CHIP 1/16W 100 OHM	R328	0790024R	RES.CHIP 1/16W 100 OHM
R287	0790024R	RES.CHIP 1/16W 100 OHM	R329	0790024R	RES.CHIP 1/16W 100 OHM
R288	0790051R	RES.CHIP 1/16W 10K OHM	R336	0790059R	RES.CHIP 1/16W 47K OHM

PRODUCT SERVICE NOTE: Components marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
R339	0790059R	RES.CHIP 1/16W 47K OHM	R445	0790064R	RES.CHIP 1/16W 100K OHM
R342	0790051R	RES.CHIP 1/16W 10K OHM	R446	0790024R	RES.CHIP 1/16W 100 OHM
R343	0790051R	RES.CHIP 1/16W 10K OHM	R447	0790037R	RES.CHIP 1/16W 1.0K OHM
R347	0790051R	RES.CHIP 1/16W 10K OHM	R448	0790064R	RES.CHIP 1/16W 100K OHM
R349	0790051R	RES.CHIP 1/16W 10K OHM	R449	0790037R	RES.CHIP 1/16W 1.0K OHM
R350	0790051R	RES.CHIP 1/16W 10K OHM	R450	0790059R	RES.CHIP 1/16W 47K OHM
R351	0790055R	RES.CHIP 1/16W 22K OHM	R451	0790059R	RES.CHIP 1/16W 47K OHM
R353	0790051R	RES.CHIP 1/16W 10K OHM	R452	0790024R	RES.CHIP 1/16W 100 OHM
R354	0790055R	RES.CHIP 1/16W 22K OHM	R453	0790064R	RES.CHIP 1/16W 100K OHM
R357	0790051R	RES.CHIP 1/16W 10K OHM	R454	0790024R	RES.CHIP 1/16W 100 OHM
R358	0790051R	RES.CHIP 1/16W 10K OHM	R455	0790064R	RES.CHIP 1/16W 100K OHM
R359	0196056R	RES.-1608CHIP 1/16W 360-J TAPE	R456	AQ00163R	RES.CHIP 1/16W 68 OHM TAPE
R360	0196089R	RES.-1608CHIP 1/16W 7.5K-J TAPE	R457	AQ00163R	RES.CHIP 1/16W 68 OHM TAPE
R361	0790024R	RES.CHIP 1/16W 100 OHM	R458	AQ00163R	RES.CHIP 1/16W 68 OHM TAPE
R362	0790024R	RES.CHIP 1/16W 100 OHM	R459	AQ00186R	RES.CHIP 1/16W 510 OHM TAPE
R363	0790046R	RES.CHIP 1/16W 4.7K OHM	R460	AQ00186R	RES.CHIP 1/16W 510 OHM TAPE
R364	0790046R	RES.CHIP 1/16W 4.7K OHM	R461	0790024R	RES.CHIP 1/16W 100 OHM
R365	0790024R	RES.CHIP 1/16W 100 OHM	R462	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE
R366	0790024R	RES.CHIP 1/16W 100 OHM	R463	0790037R	RES.CHIP 1/16W 1.0K OHM
R367	0790042R	RES.CHIP 1/16W 2.2K OHM	R464	0790037R	RES.CHIP 1/16W 1.0K OHM
R368	0790024R	RES.CHIP 1/16W 100 OHM	R465	0790037R	RES.CHIP 1/16W 1.0K OHM
R369	0790024R	RES.CHIP 1/16W 100 OHM	R466	0790024R	RES.CHIP 1/16W 100 OHM
R370	0790046R	RES.CHIP 1/16W 4.7K OHM	R467	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE
R371	0790046R	RES.CHIP 1/16W 4.7K OHM	R468	AQ00187R	RES.CHIP 1/16W 560 OHM TAPE
R372	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R469	AQ00187R	RES.CHIP 1/16W 560 OHM TAPE
R373	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R470	0790024R	RES.CHIP 1/16W 100 OHM
R374	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R472	0790024R	RES.CHIP 1/16W 100 OHM
R375	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R473	0790024R	RES.CHIP 1/16W 100 OHM
R376	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R474	0790024R	RES.CHIP 1/16W 100 OHM
R381	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R475	0790024R	RES.CHIP 1/16W 100 OHM
R382	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R476	0790024R	RES.CHIP 1/16W 100 OHM
R383	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R477	0790024R	RES.CHIP 1/16W 100 OHM
R386	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R478	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE
R388	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R479	0790024R	RES.CHIP 1/16W 100 OHM
R391	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R480	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE
R401	0790024R	RES.CHIP 1/16W 100 OHM	R481	0790024R	RES.CHIP 1/16W 100 OHM
R402	0790051R	RES.CHIP 1/16W 10K OHM	R482	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE
R403	0790059R	RES.CHIP 1/16W 47K OHM	R483	0790063R	RES.CHIP 1/16W 82K OHM
R404	0790055R	RES.CHIP 1/16W 22K OHM	R484	0790024R	RES.CHIP 1/16W 100 OHM
R405	0790053R	RES.CHIP 1/16W 15K OHM	R485	0790063R	RES.CHIP 1/16W 82K OHM
R406	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE	R489	0790024R	RES.CHIP 1/16W 100 OHM
R407	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE	R490	0790024R	RES.CHIP 1/16W 100 OHM
R408	0790051R	RES.CHIP 1/16W 10K OHM	R491	0790024R	RES.CHIP 1/16W 100 OHM
R410	0790024R	RES.CHIP 1/16W 100 OHM	R495	0790051R	RES.CHIP 1/16W 10K OHM
R412	0790024R	RES.CHIP 1/16W 100 OHM	R496	0790051R	RES.CHIP 1/16W 10K OHM
R413	0790024R	RES.CHIP 1/16W 100 OHM	R498	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R414	0790037R	RES.CHIP 1/16W 1.0K OHM	R4A2	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE
R415	0790024R	RES.CHIP 1/16W 100 OHM	R4A3	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE
R416	0790024R	RES.CHIP 1/16W 100 OHM	R4A6	0790028R	RES.CHIP 1/16W 220 OHM
R417	0790024R	RES.CHIP 1/16W 100 OHM	R4A7	0790028R	RES.CHIP 1/16W 220 OHM
R418	0790037R	RES.CHIP 1/16W 1.0K OHM	R4A8	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE
R419	0790024R	RES.CHIP 1/16W 100 OHM	R4C8	0790042R	RES.CHIP 1/16W 2.2K OHM
R421	0790024R	RES.CHIP 1/16W 100 OHM	R4C9	0790042R	RES.CHIP 1/16W 2.2K OHM
R422	0790024R	RES.CHIP 1/16W 100 OHM	R4E0	0790042R	RES.CHIP 1/16W 2.2K OHM
R423	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE	R4E1	0790042R	RES.CHIP 1/16W 2.2K OHM
R424	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE	R4E2	0790042R	RES.CHIP 1/16W 2.2K OHM
R425	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE	R4E3	0790042R	RES.CHIP 1/16W 2.2K OHM
R426	0790051R	RES.CHIP 1/16W 10K OHM	R4E4	0790042R	RES.CHIP 1/16W 2.2K OHM
R427	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE	R4E5	0790042R	RES.CHIP 1/16W 2.2K OHM
R428	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE	R4E6	0790042R	RES.CHIP 1/16W 2.2K OHM
R429	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE	R4E7	0790042R	RES.CHIP 1/16W 2.2K OHM
R430	0790051R	RES.CHIP 1/16W 10K OHM	R4F0	0790042R	RES.CHIP 1/16W 2.2K OHM
R431	0790051R	RES.CHIP 1/16W 10K OHM	R4F1	0790042R	RES.CHIP 1/16W 2.2K OHM
R432	0790064R	RES.CHIP 1/16W 100K OHM	R4F2	0790042R	RES.CHIP 1/16W 2.2K OHM
R433	0790024R	RES.CHIP 1/16W 100 OHM	R4F3	0790042R	RES.CHIP 1/16W 2.2K OHM
R434	0790024R	RES.CHIP 1/16W 100 OHM	R4F4	0790042R	RES.CHIP 1/16W 2.2K OHM
R435	0790064R	RES.CHIP 1/16W 100K OHM	R4F5	0790042R	RES.CHIP 1/16W 2.2K OHM
R436	0790064R	RES.CHIP 1/16W 100K OHM	R4F6	0790042R	RES.CHIP 1/16W 2.2K OHM
R437	0790041R	RES.CHIP 1/16W 1.8K OHM	R4F7	0790042R	RES.CHIP 1/16W 2.2K OHM
R439	0790064R	RES.CHIP 1/16W 100K OHM	R4F8	0790042R	RES.CHIP 1/16W 2.2K OHM
R440	0790037R	RES.CHIP 1/16W 1.0K OHM	R4F9	0790042R	RES.CHIP 1/16W 2.2K OHM
R441	0790041R	RES.CHIP 1/16W 1.8K OHM	R4G0	0790024R	RES.CHIP 1/16W 100 OHM
R442	0790024R	RES.CHIP 1/16W 100 OHM	R4G1	0790024R	RES.CHIP 1/16W 100 OHM
R443	0790051R	RES.CHIP 1/16W 10K OHM	R4G2	0790028R	RES.CHIP 1/16W 220 OHM
R444	0790064R	RES.CHIP 1/16W 100K OHM	R4G4	0790051R	RES.CHIP 1/16W 10K OHM

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
R4G5	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R556	0790028R	RES.CHIP 1/16W 220 OHM
R4G7	0790059R	RES.CHIP 1/16W 47K OHM	R557	0790028R	RES.CHIP 1/16W 220 OHM
R4G8	0790059R	RES.CHIP 1/16W 47K OHM	R558	AQ00244R	RES.CHIP 1/16W 75K OHM TAPE
R4G9	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R559	0790033R	RES.CHIP 1/16W 470 OHM
R4H0	0790037R	RES.CHIP 1/16W 1.0K OHM	R560	0790033R	RES.CHIP 1/16W 470 OHM
R4H1	0790024R	RES.CHIP 1/16W 100 OHM	R561	0790033R	RES.CHIP 1/16W 470 OHM
R4H2	0790037R	RES.CHIP 1/16W 1.0K OHM	R562	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R4H3	0790037R	RES.CHIP 1/16W 1.0K OHM	R563	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R4H4	0790024R	RES.CHIP 1/16W 100 OHM	R564	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R4H5	0790037R	RES.CHIP 1/16W 1.0K OHM	R566	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R4H6	0790037R	RES.CHIP 1/16W 1.0K OHM	R567	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R4K5	0790051R	RES.CHIP 1/16W 10K OHM	R568	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE
R4K6	0790051R	RES.CHIP 1/16W 10K OHM	R569	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE
R4K7	0790051R	RES.CHIP 1/16W 10K OHM	R570	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE
R4K8	0790051R	RES.CHIP 1/16W 10K OHM	R592	0196153R	RES 1608 CHIP 1/16W 2.7MJ TAPE
R4K9	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE	R593	0196153R	RES 1608 CHIP 1/16W 2.7MJ TAPE
R4L0	0790051R	RES.CHIP 1/16W 10K OHM	R594	0196153R	RES 1608 CHIP 1/16W 2.7MJ TAPE
R4L3	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R595	0196153R	RES 1608 CHIP 1/16W 2.7MJ TAPE
R4L5	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R596	0196153R	RES 1608 CHIP 1/16W 2.7MJ TAPE
R4L8	0790024R	RES.CHIP 1/16W 100 OHM	R597	0196153R	RES 1608 CHIP 1/16W 2.7MJ TAPE
R4M0	0790024R	RES.CHIP 1/16W 100 OHM	R598	0196153R	RES 1608 CHIP 1/16W 2.7MJ TAPE
R4M1	AQ00186R	RES.CHIP 1/16W 510 OHM TAPE	R5A6	0790024R	RES.CHIP 1/16W 100 OHM
R4M5	AQ00187R	RES.CHIP 1/16W 560 OHM TAPE	R5A7	0790024R	RES.CHIP 1/16W 100 OHM
R4M6	0790035R	RES.CHIP 1/16W 680 OHM	R5A8	0790024R	RES.CHIP 1/16W 100 OHM
R4M7	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R5A9	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R4M8	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R5C0	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
R4M9	AQ00186R	RES.CHIP 1/16W 510 OHM TAPE	R601	0700045M	RES.-CARBON FLM 1/16W 2.2K-JB
R4N0	0790024R	RES.CHIP 1/16W 100 OHM	R602	0700047M	RES.-CARBON FLM 1/16W 3.3K-JB
R4N1	0790035R	RES.CHIP 1/16W 680 OHM	R603	0700049M	RES.-CARBON FLM 1/16W 4.7K-JB
R4N3	0790035R	RES.CHIP 1/16W 680 OHM	R606	0700053M	RES.-CARBON FLM 1/16W 8.2K-JB
R4N4	AQ00186R	RES.CHIP 1/16W 510 OHM TAPE	R609	0700034M	RES.-CARBON FLM 1/16W 330-JB
R4N5	AQ00186R	RES.CHIP 1/16W 510 OHM TAPE	R613	0100053M	RES.-CARBON FLM 1/8W 330-JB
R501	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R614	0100053M	RES.-CARBON FLM 1/8W 330-JB
R502	0790024R	RES.CHIP 1/16W 100 OHM	R615	0700032M	RES.-CARBON FLM 1/16W 220-JB
R503	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R616	0700058M	RES.-CARBON FLM 1/16W 22K-JB
R504	0790024R	RES.CHIP 1/16W 100 OHM	R619	AT03191S	METAL OX. 1.2OHM 1W
R505	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R620	AT03191S	METAL OX. 1.2OHM 1W
R506	0790024R	RES.CHIP 1/16W 100 OHM	R622	0188095M	RES.-CARBON FLM 1/2W 2.2-J
R507	0790024R	RES.CHIP 1/16W 100 OHM	R625	AT03242S	METAL OX. 100OHM 1W
R508	0790024R	RES.CHIP 1/16W 100 OHM	R626	AT03857M	100OHM 1/2W RDS50 CARBON FILM RESISTOR
R509	0790024R	RES.CHIP 1/16W 100 OHM	R627	AT03857M	100OHM 1/2W RDS50 CARBON FILM RESISTOR
R510	0790024R	RES.CHIP 1/16W 100 OHM	R628	AT03857M	100OHM 1/2W RDS50 CARBON FILM RESISTOR
R511	0790024R	RES.CHIP 1/16W 100 OHM	R629	AT03184S	METAL OX. 0.68OHM 1W
R512	0790024R	RES.CHIP 1/16W 100 OHM	R630	0700054M	RES.-CARBON FLM 1/16W 10K-JB
R513	0790024R	RES.CHIP 1/16W 100 OHM	R631	0700059M	RES.-CARBON FLM 1/16W 27K-JB
R514	0790024R	RES.CHIP 1/16W 100 OHM	R632	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
R515	0790024R	RES.CHIP 1/16W 100 OHM	R637	0700027M	RES.-CARBON FLM 1/16W 100-JB
R516	0790024R	RES.CHIP 1/16W 100 OHM	R701	AT03901M	180KOHM 1/2W RDS50 CARBON FILM RESISTOR
R517	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R701	AT03901M	180KOHM 1/2W RDS50 CARBON FILM RESISTOR
R518	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	R703	0700054M	RES.-CARBON FLM 1/16W 10K-JB
R520	0790046R	RES.CHIP 1/16W 4.7K OHM	R704	AT03857M	100OHM 1/2W RDS50 CARBON FILM RESISTOR
R521	0790024R	RES.CHIP 1/16W 100 OHM	R706	AT03881M	5.6KOHM 1/2W RDS50 CARBON FILM RESISTOR
R522	0790024R	RES.CHIP 1/16W 100 OHM	R707	AT03882M	6.8KOHM 1/2W RDS50 CARBON FILM RESISTOR
R523	AQ00244R	RES.CHIP 1/16W 75K OHM TAPE	R708	0700064M	RES.-CARBON FLM 1/16W 56K-JB
R524	0790032R	RES.CHIP 1/16W 390 OHM	R722	0700032M	RES.-CARBON FLM 1/16W 220-JB
R525	0790032R	RES.CHIP 1/16W 390 OHM	R723	AT03862M	220OHM 1/2W RDS50 CARBON FILM RESISTOR
R526	0790032R	RES.CHIP 1/16W 390 OHM	R724	0700065M	RES.-CARBON FLM 1/16W 68K-JB
R527	0790033R	RES.CHIP 1/16W 470 OHM	R725	0100085M	RES.-CARBON FLM 1/8W 6.8K-JB
R528	0790033R	RES.CHIP 1/16W 470 OHM	R729	AT03562S	METAL OX. 100OHM 3W
R529	0790033R	RES.CHIP 1/16W 470 OHM	R730	AT03424S	METAL OX. 680OHM 2W
R538	0790024R	RES.CHIP 1/16W 100 OHM	R731	AT01532S	METAL FILM RESISTOR(0.12OHM 1/2W)
R539	0790037R	RES.CHIP 1/16W 1.0K OHM	R732	AT03844M	10.0OHM 1/2W RDS50 CARBON FILM RESISTOR
R540	0790024R	RES.CHIP 1/16W 100 OHM	R735	0700033M	RES.-CARBON FLM 1/16W 270-JB
R541	0790037R	RES.CHIP 1/16W 1.0K OHM	R736	0700033M	RES.-CARBON FLM 1/16W 270-JB
R542	0790024R	RES.CHIP 1/16W 100 OHM	R737	AT03869M	820OHM 1/2W RDS50 CARBON FILM RESISTOR
R543	0790024R	RES.CHIP 1/16W 100 OHM	R738	AT03588S	METAL OX. 1.0KOHM 3W
R544	0790024R	RES.CHIP 1/16W 100 OHM	R739	AT03411S	METAL OX. 220OHM 2W
R545	0790024R	RES.CHIP 1/16W 100 OHM	R740	AT00501S	RES.MTL OXIDE FLM 2W 220 OHM
R546	0790024R	RES.CHIP 1/16W 100 OHM	R747	0700054M	RES.-CARBON FLM 1/16W 10K-JB
R547	0790024R	RES.CHIP 1/16W 100 OHM	R748	AT03422S	METAL OX. 560OHM 2W
R548	0790024R	RES.CHIP 1/16W 100 OHM	R758	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
R552	0790046R	RES.CHIP 1/16W 4.7K OHM	R759	0700063M	RES.-CARBON FLM 1/16W 47K-JB
R553	0790024R	RES.CHIP 1/16W 100 OHM	R761	0700054M	RES.-CARBON FLM 1/16W 10K-JB
R554	0790024R	RES.CHIP 1/16W 100 OHM	R802	0100035M	RES.-CARBON FLM 1/8W 56-JB
R555	0790028R	RES.CHIP 1/16W 220 OHM	R803	0100031M	RES.-CARBON FLM 1/8W 39-JB

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SYMBOL NO.	PART NO.	PART DESCRIPTION
R804	0100017M	RES.-CARBON FLM 1/8W 10-JB
R805	0100073M	RES.-CARBON FLM 1/8W 2.2K-JB
R806	AT00116M	RES.CARBON FLM 1/2W 9.1 OHM
R807	AT03867M	560OHM 1/2W RDS50 CARBON FILM RESISTOR
R808	0100113M	RES.-CARBON FLM 1/8W 100K-JB
R809	AT03873M	1.5KOHM 1/2W RDS50 CARBON FILM RESISTOR
R811	AT04381	METAL OXIDE RESISTOR (1.2KOHM 7W)
R812	AT04381	METAL OXIDE RESISTOR (1.2KOHM 7W)
R813	0100035M	RES.-CARBON FLM 1/8W 56-JB
R814	0100035M	RES.-CARBON FLM 1/8W 56-JB
R815	0113725M	RESISTOR CARBON FILM SRD1/2P-B 100-J
R816	AT03906M	470KOHM 1/2W RDS50 CARBON FILM RESISTOR
R821	0100073M	RES.-CARBON FLM 1/8W 2.2K-JB
R822	0100054M	RES.-CARBON FLM 1/8W 360-JB
R823	0100065M	RES.-CARBON FLM 1/8W 1K-JB
R830	0100049M	RES.-CARBON FLM 1/8W 220-JB
R831	0100075M	RES.-CARBON FLM 1/8W 2.7K-JB
R832	0100077M	RES.-CARBON FLM 1/8W 3.3K-JB
R852	0100035M	RES.-CARBON FLM 1/8W 56-JB
R853	0100031M	RES.-CARBON FLM 1/8W 39-JB
R854	0100017M	RES.-CARBON FLM 1/8W 10-JB
R855	0100073M	RES.-CARBON FLM 1/8W 2.2K-JB
R856	AT00116M	RES.CARBON FLM 1/2W 9.1 OHM
R857	AT03867M	560OHM 1/2W RDS50 CARBON FILM RESISTOR
R858	0100113M	RES.-CARBON FLM 1/8W 100K-JB
R859	AT03871M	1KOHM 1/2W RDS50 CARBON FILM RESISTOR
R861	AT04381	METAL OXIDE RESISTOR (1.2KOHM 7W)
R862	AT04381	METAL OXIDE RESISTOR (1.2KOHM 7W)
R863	0100035M	RES.-CARBON FLM 1/8W 56-JB
R864	0100035M	RES.-CARBON FLM 1/8W 56-JB
R865	0113725M	RESISTOR CARBON FILM SRD1/2P-B 100-J
R866	AT03906M	470KOHM 1/2W RDS50 CARBON FILM RESISTOR
R869	AT03902M	220KOHM 1/2W RDS50 CARBON FILM RESISTOR
R870	AT03902M	220KOHM 1/2W RDS50 CARBON FILM RESISTOR
R880	0100049M	RES.-CARBON FLM 1/8W 220-JB
R881	0100075M	RES.-CARBON FLM 1/8W 2.7K-JB
R882	0100077M	RES.-CARBON FLM 1/8W 3.3K-JB
R883	0100089M	RES.-CARBON FLM 1/8W 10K-JB
R884	0100105M	RES.-CARBON FLM 1/8W 47K-JB
R8A2	0100035M	RES.-CARBON FLM 1/8W 56-JB
R8A3	0100040M	RES.-CARBON FLM 1/8W 91-JB
R8A4	0100017M	RES.-CARBON FLM 1/8W 10-JB
R8A5	0100057M	RES.-CARBON FLM 1/8W 470-JB
R8A6	AT00116M	RES.CARBON FLM 1/2W 9.1 OHM
R8A7	AT03867M	560OHM 1/2W RDS50 CARBON FILM RESISTOR
R8A8	0100113M	RES.-CARBON FLM 1/8W 100K-JB
R8A9	AT03873M	1.5KOHM 1/2W RDS50 CARBON FILM RESISTOR
R8C1	AT04381	METAL OXIDE RESISTOR (1.2KOHM 7W)
R8C2	AT04381	METAL OXIDE RESISTOR (1.2KOHM 7W)
R8C3	0100035M	RES.-CARBON FLM 1/8W 56-JB
R8C4	0100035M	RES.-CARBON FLM 1/8W 56-JB
R8C5	0113725M	RESISTOR CARBON FILM SRD1/2P-B 100-J
R8C6	AT03906M	470KOHM 1/2W RDS50 CARBON FILM RESISTOR
R8E0	0100041M	RES.-CARBON FLM 1/8W 100-JB
R8E2	0100057M	RES.-CARBON FLM 1/8W 470-JB
R8E3	0100059M	RES.-CARBON FLM 1/8W 560-JB
R8E4	0100079M	RES.-CARBON FLM 1/8W 3.9K-JB
R8E5	0100043M	RES.-CARBON FLM 1/8W 120-JB
R8E6	0100077M	RES.-CARBON FLM 1/8W 3.3K-JB
R8E7	0100069M	RES.-CARBON FLM 1/8W 1.5K-JB
R8E8	0100047M	RES.-CARBON FLM 1/8W 180-JB
R8F0	0100049M	RES.-CARBON FLM 1/8W 220-JB
R8F1	0100075M	RES.-CARBON FLM 1/8W 2.7K-JB
R8F2	0100077M	RES.-CARBON FLM 1/8W 3.3K-JB
RA01	AQ00194R	RES.CHIP 1/16W 1.0K OHM TAPE
RA02	0790024R	RES.CHIP 1/16W 100 OHM
RA03	0790024R	RES.CHIP 1/16W 100 OHM
RA04	0790037R	RES.CHIP 1/16W 1.0K OHM
RA05	AQ00181R	RES.CHIP 1/16W 330 OHM TAPE
RA06	0790024R	RES.CHIP 1/16W 100 OHM
RA07	0790058R	RES.CHIP 1/16W 39K OHM
RA08	0790052R	RES.CHIP 1/16W 12K OHM
RA09	AQ00194R	RES.CHIP 1/16W 1.0K OHM TAPE
RA10	0790037R	RES.CHIP 1/16W 1.0K OHM
RA11	AQ00181R	RES.CHIP 1/16W 330 OHM TAPE
RA12	0790024R	RES.CHIP 1/16W 100 OHM
RA13	0790058R	RES.CHIP 1/16W 39K OHM
RA14	0790052R	RES.CHIP 1/16W 12K OHM
RA15	0790046R	RES.CHIP 1/16W 4.7K OHM
RA17	0790037R	RES.CHIP 1/16W 1.0K OHM
RA18	0790059R	RES.CHIP 1/16W 47K OHM
RA19	0790064R	RES.CHIP 1/16W 100K OHM
RA20	0790051R	RES.CHIP 1/16W 10K OHM
RA21	0790051R	RES.CHIP 1/16W 10K OHM
RA22	0790059R	RES.CHIP 1/16W 47K OHM
RA23	AQ00196R	RES.CHIP 1/16W 1.2K OHM TAPE
RA24	AQ00203R	RES.CHIP 1/16W 2.2K OHM TAPE
RA25	0790059R	RES.CHIP 1/16W 47K OHM
RA26	0790055R	RES.CHIP 1/16W 22K OHM
RA27	AQ00203R	RES.CHIP 1/16W 2.2K OHM TAPE
RA28	0790059R	RES.CHIP 1/16W 47K OHM
RA29	AQ00203R	RES.CHIP 1/16W 2.2K OHM TAPE
RA30	0790064R	RES.CHIP 1/16W 100K OHM
RA31	0790033R	RES.CHIP 1/16W 470 OHM
RA32	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RA33	0790064R	RES.CHIP 1/16W 100K OHM
RA34	0790037R	RES.CHIP 1/16W 1.0K OHM
RA35	0790037R	RES.CHIP 1/16W 1.0K OHM
RA36	AT03197S	METAL OX. 2.2OHM 1W
RA37	AT03197S	METAL OX. 2.2OHM 1W
RA38	0790062R	RES.CHIP 1/16W 68K OHM
RA39	0790062R	RES.CHIP 1/16W 68K OHM
RA40	AT03871M	1KOHM 1/2W RDS50 CARBON FILM RESISTOR
RA41	AT03871M	1KOHM 1/2W RDS50 CARBON FILM RESISTOR
RA76	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RA77	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RA78	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RA79	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RA80	0790064R	RES.CHIP 1/16W 100K OHM
RB09	0700049M	RES.-CARBON FLM 1/16W 4.7K-JB
RB10	0700055M	RES.-CARBON FLM 1/16W 12K-JB
RB11	0700054M	RES.-CARBON FLM 1/16W 10K-JB
RB12	0700063M	RES.-CARBON FLM 1/16W 47K-JB
RB13	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RB14	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RB15	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RB16	0700048M	RES.-CARBON FLM 1/16W 3.9K-JB
RB17	0700048M	RES.-CARBON FLM 1/16W 3.9K-JB
RB18	0700054M	RES.-CARBON FLM 1/16W 10K-JB
RB19	0700054M	RES.-CARBON FLM 1/16W 10K-JB
RB23	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RB24	0700053M	RES.-CARBON FLM 1/16W 8.2K-JB
RB29	0700042M	RES.-CARBON FLM 1/16W 1.2K-JB
RB31	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RB32	0700014M	RES.-CARBON FLM 1/16W 10-J
RB33	0700048M	RES.-CARBON FLM 1/16W 3.9K-JB
RB35	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RB37	0700049M	RES.-CARBON FLM 1/16W 4.7K-JB
RB39	0700054M	RES.-CARBON FLM 1/16W 10K-JB
RB45	0700052M	RES.-CARBON FLM 1/16W 6.8K-JB
RB52	0700039M	RES.-CARBON FLM 1/16W 820-JB
RB53	0700057M	RES.-CARBON FLM 1/16W 18K-JB
RB54	0700042M	RES.-CARBON FLM 1/16W 1.2K-JB
RB55	0700063M	RES.-CARBON FLM 1/16W 47K-JB
RB75	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RE01	0700017M	RES.-CARBON FLM 1/16W 18-J
RE02	AT03862M	220OHM 1/2W RDS50 CARBON FILM RESISTOR
RE03	0700014M	RES.-CARBON FLM 1/16W 10-J
RE04	0700014M	RES.-CARBON FLM 1/16W 10-J
RE05	AT03844M	10.0OHM 1/2W RDS50 CARBON FILM RESISTOR
RE12	0100017M	RES.-CARBON FLM 1/8W 10-JB
RE13	0100017M	RES.-CARBON FLM 1/8W 10-JB
RE15	AT03895M	68KOHM 1/2W RDS50 CARBON FILM RESISTOR
RE16	AT03895M	68KOHM 1/2W RDS50 CARBON FILM RESISTOR
RE18	AT03876M	2.7KOHM 1/2W RDS50 CARBON FILM RESISTOR
RE19	0100075M	RES.-CARBON FLM 1/8W 2.7K-JB
RE20	AT03885M	12KOHM 1/2W RDS50 CARBON FILM RESISTOR
RE21	AT03862M	220OHM 1/2W RDS50 CARBON FILM RESISTOR
RE22	AT03862M	220OHM 1/2W RDS50 CARBON FILM RESISTOR
RE23	0113686M	RES.-CARBON FLM 1/2W 2.7-J

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SYMBOL NO.	PART NO.	PART DESCRIPTION
RE24	0113686M	RES.-CARBON FLM 1/2W 2.7-J
RE25	AT03571S	METAL OX. 220OHM 3W
RE27	AT03579S	METAL OX. 470OHM 3W
RE29	0100081M	RES.-CARBON FLM 1/8W 4.7K-JB
RE31	0100089M	RES.-CARBON FLM 1/8W 10K-JB
RE34	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RE35	AT00287S	RES.MTL OXIDE FLM 3W 2.2 OHM
RE51	0700017M	RES.-CARBON FLM 1/16W 18-J
RE52	AT03862M	220OHM 1/2W RDS50 CARBON FILM RESISTOR
RE53	0700014M	RES.-CARBON FLM 1/16W 10-J
RE54	0700014M	RES.-CARBON FLM 1/16W 10-J
RE55	AT03844M	10.0OHM 1/2W RDS50 CARBON FILM RESISTOR
RE62	0100017M	RES.-CARBON FLM 1/8W 10-JB
RE63	0100017M	RES.-CARBON FLM 1/8W 10-JB
RE66	AT03876M	2.7KOHM 1/2W RDS50 CARBON FILM RESISTOR
RE67	AT03895M	68KOHM 1/2W RDS50 CARBON FILM RESISTOR
RE68	AT03895M	68KOHM 1/2W RDS50 CARBON FILM RESISTOR
RE69	0100075M	RES.-CARBON FLM 1/8W 2.7K-JB
RE70	AT03885M	12KOHM 1/2W RDS50 CARBON FILM RESISTOR
RE71	AT03862M	220OHM 1/2W RDS50 CARBON FILM RESISTOR
RE72	0113686M	RES.-CARBON FLM 1/2W 2.7-J
RE73	AT03862M	220OHM 1/2W RDS50 CARBON FILM RESISTOR
RE74	0113686M	RES.-CARBON FLM 1/2W 2.7-J
RE75	AT03571S	METAL OX. 220OHM 3W
REA1	0700017M	RES.-CARBON FLM 1/16W 18-J
REA2	AT03862M	220OHM 1/2W RDS50 CARBON FILM RESISTOR
REA3	0700014M	RES.-CARBON FLM 1/16W 10-J
REA4	0700014M	RES.-CARBON FLM 1/16W 10-J
REA5	AT03844M	10.0OHM 1/2W RDS50 CARBON FILM RESISTOR
REC3	0100017M	RES.-CARBON FLM 1/8W 10-JB
REC4	0100017M	RES.-CARBON FLM 1/8W 10-JB
REC7	AT03876M	2.7KOHM 1/2W RDS50 CARBON FILM RESISTOR
REC8	AT03895M	68KOHM 1/2W RDS50 CARBON FILM RESISTOR
REC9	AT03895M	68KOHM 1/2W RDS50 CARBON FILM RESISTOR
REE1	0100075M	RES.-CARBON FLM 1/8W 2.7K-JB
REE2	AT03885M	12KOHM 1/2W RDS50 CARBON FILM RESISTOR
REE3	AT03862M	220OHM 1/2W RDS50 CARBON FILM RESISTOR
REE4	0113686M	RES.-CARBON FLM 1/2W 2.7-J
REE5	AT03862M	220OHM 1/2W RDS50 CARBON FILM RESISTOR
REE6	0113686M	RES.-CARBON FLM 1/2W 2.7-J
REE7	AT03571S	METAL OX. 220OHM 3W
REE9	0700027M	RES.-CARBON FLM 1/16W 100-JB
REF1	0100021M	RES.-CARBON FLM 1/8W 15-JB
REF2	AT03857M	100OHM 1/2W RDS50 CARBON FILM RESISTOR
REF4	0700027M	RES.-CARBON FLM 1/16W 100-JB
REF5	0700067M	RES.-CARBON FLM 1/16W 100K-JB
REF6	0700027M	RES.-CARBON FLM 1/16W 100-JB
RF01	0700063M	RES.-CARBON FLM 1/16W 47K-JB
RF02	AT04431M	ASR 12 TB 560KOHM J
RF03	AT04431M	ASR 12 TB 560KOHM J
RF04	0700049M	RES.-CARBON FLM 1/16W 4.7K-JB
RF05	0700059M	RES.-CARBON FLM 1/16W 27K-JB
RF06	0700045M	RES.-CARBON FLM 1/16W 2.2K-JB
RF07	AT03871M	1KOHM 1/2W RDS50 CARBON FILM RESISTOR
RF09	AT03213S	METAL OX. 8.2OHM 1W
RF10	AT03213S	METAL OX. 8.2OHM 1W
RH01	0700043M	RES.-CARBON FLM 1/16W 1.5K-JB
RH02	0700055M	RES.-CARBON FLM 1/16W 12K-JB
RH03	0700063M	RES.-CARBON FLM 1/16W 47K-JB
RH04	0700062M	RES.-CARBON FLM 1/16W 39K-JB
RH05	0700059M	RES.-CARBON FLM 1/16W 27K-JB
RH06	0700052M	RES.-CARBON FLM 1/16W 6.8K-JB
RH07	0700047M	RES.-CARBON FLM 1/16W 3.3K-JB
RH08	0700045M	RES.-CARBON FLM 1/16W 2.2K-JB
RH09	0700055M	RES.-CARBON FLM 1/16W 12K-JB
RH10	AT03869M	820OHM 1/2W RDS50 CARBON FILM RESISTOR
⚠RH11	AT03195S	METAL OX. 1.8OHM 1W
⚠RH12	AT03195S	METAL OX. 1.8OHM 1W
RH13	0100033M	RES.-CARBON FLM 1/8W 47-JB
RH14	0700047M	RES.-CARBON FLM 1/16W 3.3K-JB
⚠RH15	AT03195S	METAL OX. 1.8OHM 1W
⚠RH17	AW00208	TRIMMER RESISTOR 100KOHM 1/2W
⚠RH18	0700061M	RES.-CARBON FLM 1/16W 33K-JB
⚠RH19	0119653M	RES.-MTL FLM 1/8W 82K-FB
⚠RH20	0119643M	RES.-MTL FLM 1/8W 33K-FB
RH21	0113758M	RES.-CARBON FLM 1/2W 2.2K-JB
RH22	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RH23	AT03882M	6.8KOHM 1/2W RDS50 CARBON FILM RESISTOR
⚠RH24	0119651M	RES.-MTL FLM 1/8W 68K-FB
⚠RH25	0119633M	RES.-MTL FLM 1/8W 12K-FB
RH26	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RH27	0100098M	RES.-CARBON FLM 1/8W 24K-JB
RH28	AT03892M	39KOHM 1/2W RDS50 CARBON FILM RESISTOR
RH30	0700054M	RES.-CARBON FLM 1/16W 10K-JB
RH31	AT03291S	METAL OX. 6.8KOHM 1W
⚠RH32	0100119M	RES.-CARBON FLM 1/8W 180K-JB
RH34	AT03215S	METAL OX. 10.0OHM 1W
RH35	0700045M	RES.-CARBON FLM 1/16W 2.2K-JB
RH36	0700063M	RES.-CARBON FLM 1/16W 47K-JB
RH37	0700052M	RES.-CARBON FLM 1/16W 6.8K-JB
RH40	0700063M	RES.-CARBON FLM 1/16W 47K-JB
RJ02	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RJ03	0790061R	RES.CHIP 1/16W 56K OHM
RJ07	0790019R	RES.CHIP 1/16W 47 OHM
RJ08	0790019R	RES.CHIP 1/16W 47 OHM
RJ09	0790073R	RES.CHIP 1/16W 470K OHM
RJ10	0790073R	RES.CHIP 1/16W 470K OHM
RJ13	0790024R	RES.CHIP 1/16W 100 OHM
RJ14	0790037R	RES.CHIP 1/16W 1.0K OHM
RJ19	0790059R	RES.CHIP 1/16W 47K OHM
RJ20	0790059R	RES.CHIP 1/16W 47K OHM
RJ22	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RJ23	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RJ24	AQ00183R	RES.CHIP 1/16W 390 OHM TAPE
RJ25	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RJ26	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RJ27	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RJ28	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RJ29	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RJ30	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RJ31	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RJ32	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RJ33	0790046R	RES.CHIP 1/16W 4.7K OHM
RJ34	0790051R	RES.CHIP 1/16W 10K OHM
RJ35	0790024R	RES.CHIP 1/16W 100 OHM
RJ36	0790024R	RES.CHIP 1/16W 100 OHM
RJ37	0790046R	RES.CHIP 1/16W 4.7K OHM
RJ38	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE
RJ39	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE
RJ40	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE
RJ41	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE
RJ42	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE
RJ43	AQ00164R	RES.CHIP 1/16W 75 OHM TAPE
RJ44	AQ00165R	RES.CHIP 1/16W 82 OHM TAPE
RJ45	AQ00142R	RES.CHIP 1/16W 11 OHM TAPE
RJ46	0790046R	RES.CHIP 1/16W 4.7K OHM
RJ47	0790045R	RES.CHIP 1/16W 3.9K OHM
RJ48	0790017R	RES.CHIP 1/16W 33 OHM
RJ49	0790017R	RES.CHIP 1/16W 33 OHM
RJ50	0790017R	RES.CHIP 1/16W 33 OHM
RJ51	0790017R	RES.CHIP 1/16W 33 OHM
RJ52	0790017R	RES.CHIP 1/16W 33 OHM
RJ53	0790017R	RES.CHIP 1/16W 33 OHM
RJ54	0790024R	RES.CHIP 1/16W 100 OHM
RJ56	0790024R	RES.CHIP 1/16W 100 OHM
RJ57	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RJ59	0790037R	RES.CHIP 1/16W 1.0K OHM
RJ60	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RJ61	0790059R	RES.CHIP 1/16W 47K OHM
RJ62	0790059R	RES.CHIP 1/16W 47K OHM
RJ63	0790051R	RES.CHIP 1/16W 10K OHM
RJ64	0790037R	RES.CHIP 1/16W 1.0K OHM
RJ65	0790037R	RES.CHIP 1/16W 1.0K OHM
RJ66	0790059R	RES.CHIP 1/16W 47K OHM
RJ67	0790059R	RES.CHIP 1/16W 47K OHM
RJ68	0790051R	RES.CHIP 1/16W 10K OHM
RJ69	0790037R	RES.CHIP 1/16W 1.0K OHM
RJ70	0790037R	RES.CHIP 1/16W 1.0K OHM
RJ73	0790068R	RES.CHIP 1/16W 220K OHM

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
RJ74	0790068R	RES.CHIP 1/16W 220K OHM	RK56	0700047M	RES.-CARBON FLM 1/16W 3.3K-JB
RJ75	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RK57	AT03206S	METAL OX. 4.7OHM 1W
RJ76	AQ00228R	RES.CHIP 1/16W 20K OHM TAPE	RK58	AT03206S	METAL OX. 4.7OHM 1W
RJ77	AQ00233R	RES.CHIP 1/16W 30K OHM TAPE	RK59	AT03406S	METAL OX. 150OHM 2W
RJ78	0790049R	RES.CHIP 1/16W 8.2K OHM	RK60	0700047M	RES.-CARBON FLM 1/16W 3.3K-JB
RJ79	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RK61	AT03211S	METAL OX. 6.8OHM 1W
RJ80	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RK62	AT03211S	METAL OX. 6.8OHM 1W
RJ81	0790064R	RES.CHIP 1/16W 100K OHM	RK63	AT03411S	METAL OX. 220OHM 2W
RJ82	0790033R	RES.CHIP 1/16W 470 OHM	RK64	0700047M	RES.-CARBON FLM 1/16W 3.3K-JB
RJ83	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RK65	AT03206S	METAL OX. 4.7OHM 1W
RJ84	AQ00228R	RES.CHIP 1/16W 20K OHM TAPE	RK66	AT03206S	METAL OX. 4.7OHM 1W
RJ85	AQ00233R	RES.CHIP 1/16W 30K OHM TAPE	RK67	AT03406S	METAL OX. 150OHM 2W
RJ86	0790049R	RES.CHIP 1/16W 8.2K OHM	RK68	0700047M	RES.-CARBON FLM 1/16W 3.3K-JB
RJ87	0790064R	RES.CHIP 1/16W 100K OHM	RK69	AT03213S	METAL OX. 8.2OHM 1W
RJ88	0790033R	RES.CHIP 1/16W 470 OHM	RK70	AT03213S	METAL OX. 8.2OHM 1W
RJ89	0790015R	RES.CHIP 1/16W 22 OHM	RK71	AT03411S	METAL OX. 220OHM 2W
RJ91	0790024R	RES.CHIP 1/16W 100 OHM	RK72	0700047M	RES.-CARBON FLM 1/16W 3.3K-JB
RJ92	0790039R	RES.CHIP 1/16W 1.5K OHM	RK73	AT03208S	METAL OX. 5.6OHM 1W
RJ93	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RK74	AT03208S	METAL OX. 5.6OHM 1W
RJ94	0790015R	RES.CHIP 1/16W 22 OHM	RK75	AT03406S	METAL OX. 150OHM 2W
RJ96	0790024R	RES.CHIP 1/16W 100 OHM	RK76	0700062M	RES.-CARBON FLM 1/16W 39K-JB
RJ97	0790039R	RES.CHIP 1/16W 1.5K OHM	RL10	0100129M	RES.-CARBON FLM 1/8W 470K-JB
RJ98	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RL11	0100129M	RES.-CARBON FLM 1/8W 470K-JB
RJ99	0790015R	RES.CHIP 1/16W 22 OHM	RL12	0100129M	RES.-CARBON FLM 1/8W 470K-JB
RJA2	0790024R	RES.CHIP 1/16W 100 OHM	RL13	0100129M	RES.-CARBON FLM 1/8W 470K-JB
RJA3	0790039R	RES.CHIP 1/16W 1.5K OHM	RL14	0100129M	RES.-CARBON FLM 1/8W 470K-JB
RJA4	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RL15	0100129M	RES.-CARBON FLM 1/8W 470K-JB
RJR3	0790051R	RES.CHIP 1/16W 10K OHM	RL16	0100129M	RES.-CARBON FLM 1/8W 470K-JB
RJR5	0790037R	RES.CHIP 1/16W 1.0K OHM	RL17	0100129M	RES.-CARBON FLM 1/8W 470K-JB
RJR7	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RL20	0100123M	RES.-CARBON FLM 1/8W 270K-JB
RJR9	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RL21	0700066M	RES.-CARBON FLM 1/16W 82K-JB
RJT3	0790051R	RES.CHIP 1/16W 10K OHM	RL22	0100125M	RES.-CARBON FLM 1/8W 330K-JB
RJT4	0790051R	RES.CHIP 1/16W 10K OHM	RL23	0100123M	RES.-CARBON FLM 1/8W 270K-JB
RJT5	0790051R	RES.CHIP 1/16W 10K OHM	RL24	0100129M	RES.-CARBON FLM 1/8W 470K-JB
RJT6	0790051R	RES.CHIP 1/16W 10K OHM	RL25	0700065M	RES.-CARBON FLM 1/16W 68K-JB
RJU2	AQ00421R	CHIP RESISTOR 1608(2)0OHM	RL26	0100125M	RES.-CARBON FLM 1/8W 330K-JB
RJU3	AQ00421R	CHIP RESISTOR 1608(2)0OHM	RL27	0100119M	RES.-CARBON FLM 1/8W 180K-JB
RJU4	AQ00421R	CHIP RESISTOR 1608(2)0OHM	RL30	0700027M	RES.-CARBON FLM 1/16W 100-JB
RJU5	AQ00421R	CHIP RESISTOR 1608(2)0OHM	RL31	0700027M	RES.-CARBON FLM 1/16W 100-JB
RK01	0700046M	RES.-CARBON FLM 1/16W 2.7K-JB	RL32	0700027M	RES.-CARBON FLM 1/16W 100-JB
RK02	0700046M	RES.-CARBON FLM 1/16W 2.7K-JB	RL33	0700027M	RES.-CARBON FLM 1/16W 100-JB
RK03	0700036M	RES.-CARBON FLM 1/16W 470-JB	RL34	0700027M	RES.-CARBON FLM 1/16W 100-JB
RK04	0700042M	RES.-CARBON FLM 1/16W 1.2K-JB	RL35	0700027M	RES.-CARBON FLM 1/16W 100-JB
RK05	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB	RL36	0700027M	RES.-CARBON FLM 1/16W 100-JB
RK06	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB	RL37	0700027M	RES.-CARBON FLM 1/16W 100-JB
RK07	0700049M	RES.-CARBON FLM 1/16W 4.7K-JB	RM01	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RK08	0700047M	RES.-CARBON FLM 1/16W 3.3K-JB	RM03	0700049M	RES.-CARBON FLM 1/16W 4.7K-JB
RK10	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB	RM06	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RK11	0100085M	RES.-CARBON FLM 1/8W 6.8K-JB	RM07	0700043M	RES.-CARBON FLM 1/16W 1.5K-JB
RK12	0700043M	RES.-CARBON FLM 1/16W 1.5K-JB	RM08	0700046M	RES.-CARBON FLM 1/16W 2.7K-JB
RK13	0700054M	RES.-CARBON FLM 1/16W 10K-JB	RM09	0700049M	RES.-CARBON FLM 1/16W 4.7K-JB
RK14	0700051M	RES.-CARBON FLM 1/16W 5.6K-JB	RM10	0100065M	RES.-CARBON FLM 1/8W 1K-JB
RK15	0700063M	RES.-CARBON FLM 1/16W 47K-JB	RM15	0700054M	RES.-CARBON FLM 1/16W 10K-JB
RK16	0700063M	RES.-CARBON FLM 1/16W 47K-JB	RM20	0100041M	RES.-CARBON FLM 1/8W 100-JB
RK22	0700044M	RES.-CARBON FLM 1/16W 1.8K-JB	RM21	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RK23	0700046M	RES.-CARBON FLM 1/16W 2.7K-JB	RM22	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RK25	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB	RM23	0700064M	RES.-CARBON FLM 1/16W 56K-JB
RK26	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB	RM24	0700045M	RES.-CARBON FLM 1/16W 2.2K-JB
RK30	AT03411S	METAL OX. 220OHM 2W	RM25	0100123M	RES.-CARBON FLM 1/8W 270K-JB
RK40	0700046M	RES.-CARBON FLM 1/16W 2.7K-JB	RM26	0700047M	RES.-CARBON FLM 1/16W 3.3K-JB
RK41	0700046M	RES.-CARBON FLM 1/16W 2.7K-JB	RM27	0700064M	RES.-CARBON FLM 1/16W 56K-JB
RK42	0700046M	RES.-CARBON FLM 1/16W 2.7K-JB	RM28	0100123M	RES.-CARBON FLM 1/8W 270K-JB
RK43	0700046M	RES.-CARBON FLM 1/16W 2.7K-JB	RM29	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RK44	0700046M	RES.-CARBON FLM 1/16W 2.7K-JB	RM30	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RK45	0700046M	RES.-CARBON FLM 1/16W 2.7K-JB	RM31	0100041M	RES.-CARBON FLM 1/8W 100-JB
RK46	0700063M	RES.-CARBON FLM 1/16W 47K-JB	RM35	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RK47	0700063M	RES.-CARBON FLM 1/16W 47K-JB	RM38	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RK48	0700063M	RES.-CARBON FLM 1/16W 47K-JB	RM41	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RK49	0700063M	RES.-CARBON FLM 1/16W 47K-JB	RM43	0700059M	RES.-CARBON FLM 1/16W 27K-JB
RK50	0700063M	RES.-CARBON FLM 1/16W 47K-JB	RM44	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RK51	0700063M	RES.-CARBON FLM 1/16W 47K-JB	RM67	0700063M	RES.-CARBON FLM 1/16W 47K-JB
RK52	0700047M	RES.-CARBON FLM 1/16W 3.3K-JB	RM68	AT03872M	1.2KOHM 1/2W RDS50 CARBON FILM RESISTOR
RK53	AT03213S	METAL OX. 8.2OHM 1W	RM69	0700054M	RES.-CARBON FLM 1/16W 10K-JB
RK54	AT03213S	METAL OX. 8.2OHM 1W	RM71	0700059M	RES.-CARBON FLM 1/16W 27K-JB
RK55	AT03411S	METAL OX. 220OHM 2W	RM72	0700059M	RES.-CARBON FLM 1/16W 27K-JB

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SYMBOL NO.	PART NO.	PART DESCRIPTION
RM73	0700054M	RES.-CARBON FLM 1/16W 10K-JB
RM74	AT03877M	3.3KOHM 1/2W RDS50 CARBON FILM RESISTOR
RN01	0700058M	RES.-CARBON FLM 1/16W 22K-JB
RN02	0700051M	RES.-CARBON FLM 1/16W 5.6K-JB
RN03	0700054M	RES.-CARBON FLM 1/16W 10K-JB
RN04	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RN05	0700057M	RES.-CARBON FLM 1/16W 18K-JB
RN06	0700061M	RES.-CARBON FLM 1/16W 33K-JB
RN07	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RN08	0700055M	RES.-CARBON FLM 1/16W 12K-JB
RN09	0700055M	RES.-CARBON FLM 1/16W 12K-JB
RN10	0700054M	RES.-CARBON FLM 1/16W 10K-JB
RN11	0700052M	RES.-CARBON FLM 1/16W 6.8K-JB
RN12	0700067M	RES.-CARBON FLM 1/16W 100K-JB
RN13	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RN14	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RN15	0700052M	RES.-CARBON FLM 1/16W 6.8K-JB
RP01	AT04428M	ASR 12 TB 390KOHM J
RP02	AT04428M	ASR 12 TB 390KOHM J
RP03	AT03242S	METAL OX. 100OHM 1W
RP04	AT04427M	ASR 12 TB 330KOHM J
RP05	AT04427M	ASR 12 TB 330KOHM J
RP06	0700051M	RES.-CARBON FLM 1/16W 5.6K-JB
RP07	0700009M	RES.-CARBON FLM 1/16W 4.7-J
RP08	0700054M	RES.-CARBON FLM 1/16W 10K-JB
RP09	0700009M	RES.-CARBON FLM 1/16W 4.7-J
RP10	0700054M	RES.-CARBON FLM 1/16W 10K-JB
RP11	AT03171S	METAL OX. 0.22OHM 1W
RP12	AT03171S	METAL OX. 0.22OHM 1W
RP13	AT03171S	METAL OX. 0.22OHM 1W
RP14	0700029M	RES.-CARBON FLM 1/16W 150-JB
RP15	0700025M	RES.-CARBON FLM 1/16W 68-J
RP16	AT03848M	22.0OHM 1/2W RDS50 CARBON FILM RESISTOR
RP17	0119631M	RES.-MTL FLM 1/8W 10K-FB
RP18	0119617M	RES.-MTL FLM 1/8W 2.7K-FB
RP19	0700036M	RES.-CARBON FLM 1/16W 470-JB
RP30	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RP31	0700041M	RES.-CARBON FLM 1/16W 1.0K-JB
RP32	0700062M	RES.-CARBON FLM 1/16W 39K-JB
RP34	0119693M	RES.-MTL FLM 1W 0.39-JB
RP35	0700054M	RES.-CARBON FLM 1/16W 10K-JB
RP36	0700058M	RES.-CARBON FLM 1/16W 22K-JB
RP37	0700063M	RES.-CARBON FLM 1/16W 47K-JB
RP38	AT03896M	82KOHM 1/2W RDS50 CARBON FILM RESISTOR
RP39	0700049M	RES.-CARBON FLM 1/16W 4.7K-JB
RP45	AT03275S	METAL OX. 1.8KOHM 1W
RP46	AT03888M	22KOHM 1/2W RDS50 CARBON FILM RESISTOR
RP47	AT03886M	15KOHM 1/2W RDS50 CARBON FILM RESISTOR
RV01	0790059R	RES.CHIP 1/16W 47K OHM
RV02	0790058R	RES.CHIP 1/16W 39K OHM
RV03	0790024R	RES.CHIP 1/16W 100 OHM
RV04	0790035R	RES.CHIP 1/16W 680 OHM
RV05	AQ00194R	RES.CHIP 1/16W 1.0K OHM TAPE
RV06	0790055R	RES.CHIP 1/16W 22K OHM
RV07	AQ00194R	RES.CHIP 1/16W 1.0K OHM TAPE
RV08	AQ00185R	RES.CHIP 1/16W 470 OHM TAPE
RV09	0790024R	RES.CHIP 1/16W 100 OHM
RV10	0790024R	RES.CHIP 1/16W 100 OHM
RV11	0790024R	RES.CHIP 1/16W 100 OHM
RV12	0790059R	RES.CHIP 1/16W 47K OHM
RV13	0790058R	RES.CHIP 1/16W 39K OHM
RV14	0790024R	RES.CHIP 1/16W 100 OHM
RV15	0790046R	RES.CHIP 1/16W 4.7K OHM
RV16	AQ00191R	RES.CHIP 1/16W 750 OHM TAPE
RV17	0790042R	RES.CHIP 1/16W 2.2K OHM
RV18	0790035R	RES.CHIP 1/16W 680 OHM
RV19	AQ00194R	RES.CHIP 1/16W 1.0K OHM TAPE
RV20	AQ00194R	RES.CHIP 1/16W 1.0K OHM TAPE
RV21	AQ00194R	RES.CHIP 1/16W 1.0K OHM TAPE
RV22	AQ00191R	RES.CHIP 1/16W 750 OHM TAPE
RV23	0790024R	RES.CHIP 1/16W 100 OHM
RV24	0790024R	RES.CHIP 1/16W 100 OHM
RV25	0790024R	RES.CHIP 1/16W 100 OHM
RV26	0790043R	RES.CHIP 1/16W 2.7K OHM
RV30	AQ00174R	RES.CHIP 1/16W 180 OHM TAPE
RV31	0790037R	RES.CHIP 1/16W 1.0K OHM
RV32	AQ00192R	RES.CHIP 1/16W 820 OHM TAPE
RV33	0790051R	RES.CHIP 1/16W 10K OHM
RV34	0790024R	RES.CHIP 1/16W 100 OHM
RV35	0790051R	RES.CHIP 1/16W 10K OHM
RV36	0790041R	RES.CHIP 1/16W 1.8K OHM
RV37	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RV38	0790024R	RES.CHIP 1/16W 100 OHM
RV39	0790061R	RES.CHIP 1/16W 56K OHM
RV40	0790024R	RES.CHIP 1/16W 100 OHM
RV41	0790055R	RES.CHIP 1/16W 22K OHM
RV42	0790052R	RES.CHIP 1/16W 12K OHM
RV43	0790024R	RES.CHIP 1/16W 100 OHM
RV44	0790036R	RES.CHIP 1/16W 820 OHM
RV45	0790041R	RES.CHIP 1/16W 1.8K OHM
RV47	0790011R	RES.CHIP 1/16W 10 OHM
RV48	0790011R	RES.CHIP 1/16W 10 OHM
RV49	0790024R	RES.CHIP 1/16W 100 OHM
RV50	0790024R	RES.CHIP 1/16W 100 OHM
RV52	0790042R	RES.CHIP 1/16W 2.2K OHM
RV53	AQ00187R	RES.CHIP 1/16W 560 OHM TAPE
RV54	0790044R	RES.CHIP 1/16W 3.3K OHM
RV55	0790042R	RES.CHIP 1/16W 2.2K OHM
RV56	0790032R	RES.CHIP 1/16W 390 OHM
RV57	0790032R	RES.CHIP 1/16W 390 OHM
RV58	0790028R	RES.CHIP 1/16W 220 OHM
RV59	AQ00187R	RES.CHIP 1/16W 560 OHM TAPE
RV60	0790027R	RES.CHIP 1/16W 180 OHM
RV60	0790034R	RES.CHIP 1/16W 560 OHM
RV61	0790024R	RES.CHIP 1/16W 100 OHM
RV62	0790024R	RES.CHIP 1/16W 100 OHM
RV63	AQ00214R	RES.CHIP 1/16W 5.6K OHM
RV64	0790064R	RES.CHIP 1/16W 100K OHM
RV65	0790059R	RES.CHIP 1/16W 47K OHM
RV66	0790068R	RES.CHIP 1/16W 220K OHM
RV67	AQ00214R	RES.CHIP 1/16W 5.6K OHM
RV68	0790053R	RES.CHIP 1/16W 15K OHM
RV69	0790052R	RES.CHIP 1/16W 12K OHM
RV70	0790043R	RES.CHIP 1/16W 2.7K OHM
RV71	0790044R	RES.CHIP 1/16W 3.3K OHM
RV72	0790058R	RES.CHIP 1/16W 39K OHM
RV73	0790059R	RES.CHIP 1/16W 47K OHM
RV74	0790024R	RES.CHIP 1/16W 100 OHM
RV75	AQ00187R	RES.CHIP 1/16W 560 OHM TAPE
RV76	AQ00187R	RES.CHIP 1/16W 560 OHM TAPE
RV77	0790024R	RES.CHIP 1/16W 100 OHM
RV78	0790058R	RES.CHIP 1/16W 39K OHM
RV79	0790053R	RES.CHIP 1/16W 15K OHM
RV81	0790056R	RES.CHIP 1/16W 27K OHM
RV82	0790051R	RES.CHIP 1/16W 10K OHM
RV83	0790024R	RES.CHIP 1/16W 100 OHM
RV84	0790037R	RES.CHIP 1/16W 1.0K OHM
RV86	0790033R	RES.CHIP 1/16W 470 OHM
RV87	0790035R	RES.CHIP 1/16W 680 OHM
RV88	AQ00205R	RES.CHIP 1/16W 2.7K OHM TAPE
RV89	AQ00196R	RES.CHIP 1/16W 1.2K OHM TAPE
RV90	0790037R	RES.CHIP 1/16W 1.0K OHM
RV91	0790034R	RES.CHIP 1/16W 560 OHM
RV92	0790046R	RES.CHIP 1/16W 4.7K OHM
RV93	0790039R	RES.CHIP 1/16W 1.5K OHM
RV95	AQ00214R	RES.CHIP 1/16W 5.6K OHM
RV96	AQ00214R	RES.CHIP 1/16W 5.6K OHM
RV97	0790024R	RES.CHIP 1/16W 100 OHM
RV98	0790043R	RES.CHIP 1/16W 2.7K OHM
RV99	0790024R	RES.CHIP 1/16W 100 OHM
RVA1	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RVA2	0790024R	RES.CHIP 1/16W 100 OHM
RVA3	0790037R	RES.CHIP 1/16W 1.0K OHM
RW00	0790049R	RES.CHIP 1/16W 8.2K OHM
RW01	0790054R	RES.CHIP 1/16W 18K OHM
RW02	0790057R	RES.CHIP 1/16W 33K OHM
RW03	0790059R	RES.CHIP 1/16W 47K OHM
RW04	0790059R	RES.CHIP 1/16W 47K OHM
RW05	0790055R	RES.CHIP 1/16W 22K OHM
RW06	0790024R	RES.CHIP 1/16W 100 OHM

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
RW07	0790024R	RES.CHIP 1/16W 100 OHM	RWC7	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RW08	0790042R	RES.CHIP 1/16W 2.2K OHM	RWC8	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RW09	0790051R	RES.CHIP 1/16W 10K OHM	RWC9	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RW11	AQ00185R	RES.CHIP 1/16W 470 OHM TAPE	RWE0	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RW12	0790035R	RES.CHIP 1/16W 680 OHM	RWE1	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RW13	0790037R	RES.CHIP 1/16W 1.0K OHM	RWE2	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RW14	0790051R	RES.CHIP 1/16W 10K OHM	RWE3	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RW15	AQ00196R	RES.CHIP 1/16W 1.2K OHM TAPE	RWE4	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RW16	0790024R	RES.CHIP 1/16W 100 OHM	RWE9	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RW17	0790024R	RES.CHIP 1/16W 100 OHM	RWF4	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RW18	0790024R	RES.CHIP 1/16W 100 OHM	RWF5	0790051R	RES.CHIP 1/16W 10K OHM
RW19	0790024R	RES.CHIP 1/16W 100 OHM	RWF6	0790051R	RES.CHIP 1/16W 10K OHM
RW20	0790037R	RES.CHIP 1/16W 1.0K OHM	RWF7	0790051R	RES.CHIP 1/16W 10K OHM
RW21	0790037R	RES.CHIP 1/16W 1.0K OHM	RX01	0790037R	RES.CHIP 1/16W 1.0K OHM
RW22	0790061R	RES.CHIP 1/16W 56K OHM	RX02	0790037R	RES.CHIP 1/16W 1.0K OHM
RW23	0790055R	RES.CHIP 1/16W 22K OHM	RX03	0790037R	RES.CHIP 1/16W 1.0K OHM
RW24	0790024R	RES.CHIP 1/16W 100 OHM	RX04	0790037R	RES.CHIP 1/16W 1.0K OHM
RW25	0790037R	RES.CHIP 1/16W 1.0K OHM	RX09	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RW26	0790037R	RES.CHIP 1/16W 1.0K OHM	RXA0	0790051R	RES.CHIP 1/16W 10K OHM
RW27	0790034R	RES.CHIP 1/16W 560 OHM	RXA1	0790051R	RES.CHIP 1/16W 10K OHM
RW28	0790037R	RES.CHIP 1/16W 1.0K OHM	RXA2	0790051R	RES.CHIP 1/16W 10K OHM
RW29	0790037R	RES.CHIP 1/16W 1.0K OHM	RXA3	0790051R	RES.CHIP 1/16W 10K OHM
RW30	0790037R	RES.CHIP 1/16W 1.0K OHM	RXA4	0790043R	RES.CHIP 1/16W 2.7K OHM
RW31	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RXA5	0790051R	RES.CHIP 1/16W 10K OHM
RW32	0790024R	RES.CHIP 1/16W 100 OHM	RXA6	0790051R	RES.CHIP 1/16W 10K OHM
RW33	0790024R	RES.CHIP 1/16W 100 OHM	RXA7	0790043R	RES.CHIP 1/16W 2.7K OHM
RW34	0790051R	RES.CHIP 1/16W 10K OHM	RY01	0790024R	RES.CHIP 1/16W 100 OHM
RW35	0790037R	RES.CHIP 1/16W 1.0K OHM	RY02	0790024R	RES.CHIP 1/16W 100 OHM
RW36	0790037R	RES.CHIP 1/16W 1.0K OHM	RY03	0790024R	RES.CHIP 1/16W 100 OHM
RW37	0790061R	RES.CHIP 1/16W 56K OHM	RY05	0790031R	RES.CHIP 1/16W 330 OHM
RW38	0790055R	RES.CHIP 1/16W 22K OHM	RY07	0790021R	RES.CHIP 1/16W 56 OHM
RW39	0790024R	RES.CHIP 1/16W 100 OHM	RY09	0790031R	RES.CHIP 1/16W 330 OHM
RW40	0790024R	RES.CHIP 1/16W 100 OHM	RY10	0790031R	RES.CHIP 1/16W 330 OHM
RW41	0790045R	RES.CHIP 1/16W 3.9K OHM	RY18	AQ00196R	RES.CHIP 1/16W 1.2K OHM TAPE
RW42	0790037R	RES.CHIP 1/16W 1.0K OHM	RY20	AQ00149R	RES.CHIP 1/16W 22 OHM TAPE
RW43	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RY22	0790021R	RES.CHIP 1/16W 56 OHM
RW44	0790051R	RES.CHIP 1/16W 10K OHM	RY23	0790021R	RES.CHIP 1/16W 56 OHM
RW45	0790024R	RES.CHIP 1/16W 100 OHM	RY24	0790021R	RES.CHIP 1/16W 56 OHM
RW46	0790037R	RES.CHIP 1/16W 1.0K OHM	RY25	0790021R	RES.CHIP 1/16W 56 OHM
RW47	0790037R	RES.CHIP 1/16W 1.0K OHM	RY26	0790021R	RES.CHIP 1/16W 56 OHM
RW48	0790034R	RES.CHIP 1/16W 560 OHM	RY27	0790051R	RES.CHIP 1/16W 10K OHM
RW49	0790024R	RES.CHIP 1/16W 100 OHM	RY28	0790055R	RES.CHIP 1/16W 22K OHM
RW50	0790024R	RES.CHIP 1/16W 100 OHM	RY29	0790051R	RES.CHIP 1/16W 10K OHM
RW51	0790051R	RES.CHIP 1/16W 10K OHM	RY30	0790037R	RES.CHIP 1/16W 1.0K OHM
RW52	0790024R	RES.CHIP 1/16W 100 OHM	RY32	0790056R	RES.CHIP 1/16W 27K OHM
RW53	0790024R	RES.CHIP 1/16W 100 OHM	RY33	0790043R	RES.CHIP 1/16W 2.7K OHM
RW54	0790051R	RES.CHIP 1/16W 10K OHM	RY34	0790051R	RES.CHIP 1/16W 10K OHM
RW55	0790051R	RES.CHIP 1/16W 10K OHM	RY35	0790037R	RES.CHIP 1/16W 1.0K OHM
RW56	0790024R	RES.CHIP 1/16W 100 OHM	RY38	AQ00201R	RES.CHIP 1/16W 1.8K OHM TAPE
RW57	0790024R	RES.CHIP 1/16W 100 OHM	RY39	AQ00201R	RES.CHIP 1/16W 1.8K OHM TAPE
RW58	0790024R	RES.CHIP 1/16W 100 OHM	RY40	AQ00201R	RES.CHIP 1/16W 1.8K OHM TAPE
RW59	0790045R	RES.CHIP 1/16W 3.9K OHM	RY41	0790024R	RES.CHIP 1/16W 100 OHM
RW60	0196104R	RES 1608 CHIP 1/16W 30KJ TAPE	RY42	0790024R	RES.CHIP 1/16W 100 OHM
RW61	0790051R	RES.CHIP 1/16W 10K OHM	RY43	0790024R	RES.CHIP 1/16W 100 OHM
RW62	0790024R	RES.CHIP 1/16W 100 OHM	RY44	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RW63	0790024R	RES.CHIP 1/16W 100 OHM	RY45	0790037R	RES.CHIP 1/16W 1.0K OHM
RW64	0790024R	RES.CHIP 1/16W 100 OHM	RY46	0790037R	RES.CHIP 1/16W 1.0K OHM
RW65	0196104R	RES 1608 CHIP 1/16W 30KJ TAPE	RY47	AQ00202R	RES.CHIP 1/16W 2.0K OHM TAPE
RW66	0790024R	RES.CHIP 1/16W 100 OHM	RY48	0790038R	RES.CHIP 1/16W 1.2K OHM
RW67	0790051R	RES.CHIP 1/16W 10K OHM	RY49	0790045R	RES.CHIP 1/16W 3.9K OHM
RW68	0790024R	RES.CHIP 1/16W 100 OHM	RY50	0790043R	RES.CHIP 1/16W 2.7K OHM
RW69	0196079R	RES.-1608CHIP 1/16W 3.0K-J TAPE	RY51	AQ00202R	RES.CHIP 1/16W 2.0K OHM TAPE
RW70	0196056R	RES.-1608CHIP 1/16W 360-J TAPE	RY52	0790042R	RES.CHIP 1/16W 2.2K OHM
RW71	0790037R	RES.CHIP 1/16W 1.0K OHM	RY53	0790043R	RES.CHIP 1/16W 2.7K OHM
RW72	0196079R	RES.-1608CHIP 1/16W 3.0K-J TAPE	RY54	AQ00202R	RES.CHIP 1/16W 2.0K OHM TAPE
RW73	0196056R	RES.-1608CHIP 1/16W 360-J TAPE	RY55	0790037R	RES.CHIP 1/16W 1.0K OHM
RW99	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RY56	0790042R	RES.CHIP 1/16W 2.2K OHM
RWA7	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RY57	0790051R	RES.CHIP 1/16W 10K OHM
RWA8	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RY58	0790051R	RES.CHIP 1/16W 10K OHM
RWA9	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RY59	0790037R	RES.CHIP 1/16W 1.0K OHM
RWC0	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RY60	0790042R	RES.CHIP 1/16W 2.2K OHM
RWC1	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RY61	0790051R	RES.CHIP 1/16W 10K OHM
RWC4	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RY62	0790037R	RES.CHIP 1/16W 1.0K OHM
RWC5	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RY63	0790076R	RES.CHIP 1/16W 820K OHM
RWC6	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608	RY65	0790059R	RES.CHIP 1/16W 47K OHM

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SYMBOL NO.	PART NO.	PART DESCRIPTION
RY66	0790037R	RES.CHIP 1/16W 1.0K OHM
RY67	0790024R	RES.CHIP 1/16W 100 OHM
RY68	0790024R	RES.CHIP 1/16W 100 OHM
RY69	0790037R	RES.CHIP 1/16W 1.0K OHM
RY70	0790039R	RES.CHIP 1/16W 1.5K OHM
RY71	0790037R	RES.CHIP 1/16W 1.0K OHM
RY72	0790039R	RES.CHIP 1/16W 1.5K OHM
RY74	0790024R	RES.CHIP 1/16W 100 OHM
RY75	0790024R	RES.CHIP 1/16W 100 OHM
RY76	0790037R	RES.CHIP 1/16W 1.0K OHM
RY78	0790037R	RES.CHIP 1/16W 1.0K OHM
RY79	0790024R	RES.CHIP 1/16W 100 OHM
RY80	0790024R	RES.CHIP 1/16W 100 OHM
RY81	0790024R	RES.CHIP 1/16W 100 OHM
RY82	0790024R	RES.CHIP 1/16W 100 OHM
RY83	0790051R	RES.CHIP 1/16W 10K OHM
RY84	0790024R	RES.CHIP 1/16W 100 OHM
RY85	0790037R	RES.CHIP 1/16W 1.0K OHM
RY86	0790043R	RES.CHIP 1/16W 2.7K OHM
RY88	0790037R	RES.CHIP 1/16W 1.0K OHM
RY90	0790043R	RES.CHIP 1/16W 2.7K OHM
RY91	0790037R	RES.CHIP 1/16W 1.0K OHM
RY93	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RY94	0790043R	RES.CHIP 1/16W 2.7K OHM
RY95	0790037R	RES.CHIP 1/16W 1.0K OHM
RY96	0790024R	RES.CHIP 1/16W 100 OHM
RY97	0790037R	RES.CHIP 1/16W 1.0K OHM
RY98	0790024R	RES.CHIP 1/16W 100 OHM
RY99	0790024R	RES.CHIP 1/16W 100 OHM
RYA1	0790024R	RES.CHIP 1/16W 100 OHM
RZ00	0790045R	RES.CHIP 1/16W 3.9K OHM
RZ01	0790051R	RES.CHIP 1/16W 10K OHM
RZ02	0790037R	RES.CHIP 1/16W 1.0K OHM
RZ04	0790037R	RES.CHIP 1/16W 1.0K OHM
RZ05	0790037R	RES.CHIP 1/16W 1.0K OHM
RZ07	0790033R	RES.CHIP 1/16W 470 OHM
RZ08	0790049R	RES.CHIP 1/16W 8.2K OHM
RZ09	0790037R	RES.CHIP 1/16W 1.0K OHM
RZ10	0790037R	RES.CHIP 1/16W 1.0K OHM
RZ11	0790051R	RES.CHIP 1/16W 10K OHM
RZ12	0790046R	RES.CHIP 1/16W 4.7K OHM
RZ13	0790042R	RES.CHIP 1/16W 2.2K OHM
RZ14	0790042R	RES.CHIP 1/16W 2.2K OHM
RZ15	0790043R	RES.CHIP 1/16W 2.7K OHM
RZ17	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RZ19	0790024R	RES.CHIP 1/16W 100 OHM
RZ20	0790024R	RES.CHIP 1/16W 100 OHM
RZ21	0790043R	RES.CHIP 1/16W 2.7K OHM
RZ22	0790043R	RES.CHIP 1/16W 2.7K OHM
RZ24	AQ00161R	RES.CHIP 1/16W 56 OHM TAPE
RZ25	AQ00152R	RES.CHIP 1/16W 27 OHM TAPE
RZ26	0790043R	RES.CHIP 1/16W 2.7K OHM
RZ31	AQ00203R	RES.CHIP 1/16W 2.2K OHM TAPE
RZ32	AQ00203R	RES.CHIP 1/16W 2.2K OHM TAPE
RZ34	0790038R	RES.CHIP 1/16W 1.2K OHM
RZ35	0790038R	RES.CHIP 1/16W 1.2K OHM
RZ36	0790038R	RES.CHIP 1/16W 1.2K OHM
RZ37	0790038R	RES.CHIP 1/16W 1.2K OHM
RZ38	0790038R	RES.CHIP 1/16W 1.2K OHM
RZ39	0790038R	RES.CHIP 1/16W 1.2K OHM
RZ40	0790029R	RES.CHIP 1/16W 270 OHM
RZ41	0790042R	RES.CHIP 1/16W 2.2K OHM
RZ42	0790024R	RES.CHIP 1/16W 100 OHM
RZ45	0790029R	RES.CHIP 1/16W 270 OHM
RZ46	0790029R	RES.CHIP 1/16W 270 OHM
RZ48	0790037R	RES.CHIP 1/16W 1.0K OHM
RZ49	0790037R	RES.CHIP 1/16W 1.0K OHM
RZ50	0790037R	RES.CHIP 1/16W 1.0K OHM
RZ52	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RZ53	0790037R	RES.CHIP 1/16W 1.0K OHM
RZ54	0790037R	RES.CHIP 1/16W 1.0K OHM
RZ57	0790063R	RES.CHIP 1/16W 82K OHM
RZ58	0790056R	RES.CHIP 1/16W 27K OHM
RZ59	0790051R	RES.CHIP 1/16W 10K OHM
RZ60	0790051R	RES.CHIP 1/16W 10K OHM
RZ61	0790044R	RES.CHIP 1/16W 3.3K OHM
RZ68	0790044R	RES.CHIP 1/16W 3.3K OHM
RZ69	0790024R	RES.CHIP 1/16W 100 OHM
RZ70	0790021R	RES.CHIP 1/16W 56 OHM
RZ71	0790021R	RES.CHIP 1/16W 56 OHM
RZ78	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RZ80	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RZ82	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RZ84	0790031R	RES.CHIP 1/16W 330 OHM
RZ85	AT03864M	330OHM 1/2W RDS50 CARBON FILM RESISTOR
RZ90	0790059R	RES.CHIP 1/16W 47K OHM
RZ91	0790051R	RES.CHIP 1/16W 10K OHM
RZ93	0790024R	RES.CHIP 1/16W 100 OHM
RZ97	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RZ98	0790037R	RES.CHIP 1/16W 1.0K OHM
RZA2	0790056R	RES.CHIP 1/16W 27K OHM
RZA3	0790031R	RES.CHIP 1/16W 330 OHM
RZA4	0790024R	RES.CHIP 1/16W 100 OHM
RZA5	0790033R	RES.CHIP 1/16W 470 OHM
RZA7	0790021R	RES.CHIP 1/16W 56 OHM
RZA8	0790051R	RES.CHIP 1/16W 10K OHM
RZA9	0790021R	RES.CHIP 1/16W 56 OHM
RZC0	0790021R	RES.CHIP 1/16W 56 OHM
RZC1	0790051R	RES.CHIP 1/16W 10K OHM
RZC2	0790024R	RES.CHIP 1/16W 100 OHM
RZC3	0790052R	RES.CHIP 1/16W 12K OHM
RZC4	0790057R	RES.CHIP 1/16W 33K OHM
RZC5	0790052R	RES.CHIP 1/16W 12K OHM
RZC6	0790057R	RES.CHIP 1/16W 33K OHM
RZC7	0790052R	RES.CHIP 1/16W 12K OHM
RZC8	0790057R	RES.CHIP 1/16W 33K OHM
RZC9	0790055R	RES.CHIP 1/16W 22K OHM
RZE0	0790053R	RES.CHIP 1/16W 15K OHM
RZE1	0790037R	RES.CHIP 1/16W 1.0K OHM
RZE2	0790059R	RES.CHIP 1/16W 47K OHM
RZE3	AT03857M	100OHM 1/2W RDS50 CARBON FILM RESISTOR
RZE4	0790025R	RES.CHIP 1/16W 120 OHM
RZE5	0790025R	RES.CHIP 1/16W 120 OHM
RZE6	0790025R	RES.CHIP 1/16W 120 OHM
RZE7	0790024R	RES.CHIP 1/16W 100 OHM
RZE8	0790051R	RES.CHIP 1/16W 10K OHM
RZE9	0790024R	RES.CHIP 1/16W 100 OHM
RZF0	0790021R	RES.CHIP 1/16W 56 OHM
RZF1	0790024R	RES.CHIP 1/16W 100 OHM
RZF2	0790021R	RES.CHIP 1/16W 56 OHM
RZF3	0790024R	RES.CHIP 1/16W 100 OHM
RZF4	0790021R	RES.CHIP 1/16W 56 OHM
RZF5	0790061R	RES.CHIP 1/16W 56K OHM
RZF6	0790051R	RES.CHIP 1/16W 10K OHM
RZF7	0790037R	RES.CHIP 1/16W 1.0K OHM
RZF8	0790024R	RES.CHIP 1/16W 100 OHM
RZF9	0790053R	RES.CHIP 1/16W 15K OHM
RZG0	0790062R	RES.CHIP 1/16W 68K OHM
RZG1	0790037R	RES.CHIP 1/16W 1.0K OHM
RZG2	0790043R	RES.CHIP 1/16W 2.7K OHM
RZG3	0790037R	RES.CHIP 1/16W 1.0K OHM
RZG4	0790037R	RES.CHIP 1/16W 1.0K OHM
RZG5	0790037R	RES.CHIP 1/16W 1.0K OHM
RZG9	0790001R	CHIP RESISTOR RECJUMPER-1-16C16T1608
RZH0	0790037R	RES.CHIP 1/16W 1.0K OHM
RZH1	0790051R	RES.CHIP 1/16W 10K OHM
RZH2	0790046R	RES.CHIP 1/16W 4.7K OHM
RZH3	0790051R	RES.CHIP 1/16W 10K OHM
RZH4	0790059R	RES.CHIP 1/16W 47K OHM
RZH9	0790042R	RES.CHIP 1/16W 2.2K OHM
		TRANSFORMERS
⚠ T701	BT01232	HORIZONTAL OUTPUT TRANSFORMER
⚠ T702	BZ03061	DRIVE TRANS.-DJ81
TF01	BT02143	EE22 DYNAMIC FOCUS TRANSFORMER
⚠ TH02	BW03171	FBT HFL1535AP-RC
⚠ TP01	BT02252	SWITCHING TRANSFORMER ST-1914F

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
		FILTERS, CRYSTALS			
X001	2168771	VFL-CSB503F30			
X002	BP01311R	CSTLS16M0X			
XV02	BP01241	OSCILLATOR 3.58 49U			
XV03	BP01241	OSCILLATOR 3.58 49U			
XV04	2168771	VFL-CSB503F30			
XV05	2168771	VFL-CSB503F30			
XV06	BJ00642	COIL (LC FILTER 6M LPF)			
XV07	BJ00642	COIL (LC FILTER 6M LPF)			
XV08	BJ00642	COIL (LC FILTER 6M LPF)			
XV09	BJ00642	COIL (LC FILTER 6M LPF)			
XY01	2168771	VFL-CSB503F30			
		OWNER ASSY & ACCESSORIES			
E203	FQ00021	Dry Battery (R6P-AA)			
E301	HL02062	Remote Control Unit CLU-3842WL			
N201	QR60601	DP47 Instruction Book			

DEFLECTION YOKE PART NUMBERS

MODEL	SERIAL	PART NUMBER
51S715	V4L008803 and below	BY01664
51S715	V4L008804 and above	BY01555
57S715	V4K008222 and below	BY01664
57S715	V4L008223 and above	BY01555

2.4 IC & UNIT

No.	Symbol	P#	Description	Function	Assembly	S.G.	DP47
1	I002	CK39301R	MM1096AFFE	Reset with Watch Dog Timer	Signal pwb	DA	x
2	I003	CK37051R	BD4729G-TR	Reset IC	Signal pwb	DA	x
3	I004	CK50251U	M3067V7FJFP-Flash	TV u-com(Flash)ROM1	Signal pwb	DA	x
4							
5							
6							
7	I005	CK50121R	CD4053BPWR	SD Select	Signal pwb	DA	x
8	I006	CK04681R	DS14C232CMX	AV Control	Signal pwb	DA	x
9	I007	CK39652R	BR24L32FJ-WE2	E2PROM	Signal pwb	DA	x
10	I009	CK50111R	SN74HCT245PWR	+3.3V-5V Buffer	Signal pwb	DA	x
11	I010	CK50121R	CD4053BPWR	BUS Selector	Signal pwb	DA	x
12	I013	CK37216R	TK11133CSCL	+3.3V Regulator	Signal pwb	DA	x
13	I401	CK39891R	MM1631XJBE	Audio Selector	Signal pwb	DA	x
14	I402	CK39881U	MM1630AQ	Video Selector	Signal pwb	DA	x
15	I403	CP05163F	SI-3090F	+9V Regulator	Signal pwb		x
16	I404	CK37162R	SI-8033JD	+3.3V Regulator	Signal pwb	DA	x
17	I406	CK38377R	SI-3090KM-TL	+9V Regulator	Signal pwb	DA	x
18	I501	CK50001U	AN15865A	Sub YPBPR Selector	Signal pwb	DA	x
19	I502	CK50001U	AN15865A	Main YPBPR Selector	Signal pwb	DA	x
20	I503	CK34991R	SN74ACT14PWR	Sync Inverter	Signal pwb	DA	x
21	IA01	CK38621R	NJW1160M-TE1	Audio Processor w/ BBE & SRS	Signal pwb	DA	x
22	IA02	CP08091	TA8258H	Audio Out	Signal pwb		x
23	IV01	CK37192R	SI-3025LSA-TL	+2.5V Regulator	Signal pwb	DA	x
24	IV02	CK38701U	UPD64084GC-8EA-A	3D Y/C Separator	Signal pwb	DA	x
25	IV03	CK37053R	BD4727G-TR	Reset IC	Signal pwb	DA	x
26	IV04	CK07631R	TC90A45F	Digital 2 Line Y/C Separator	Signal pwb	DA	x
27	IV06	CK35442R	MM1503XNRE	Main Y Selector	Signal pwb	DA	x
28	IV07	CK35441R	MM1501XNRE	Main C Selector	Signal pwb	DA	x
29	IV08	CK07923U	TA1270BF	Main Video/Chroma	Signal pwb	DA	x
30	IV09	CK35442R	MM1503XNRE	Sub Y Selector	Signal pwb	DA	x
31	IV10	CK35441R	MM1501XNRE	Sub C Selector	Signal pwb	DA	x
32	IV12	CK07923U	TA1270BF	Sub Video/Chroma	Signal pwb	DA	x
33	IY01	CP04232	BA033T	+3.3V Regulator	Signal pwb		x
34	IY02	CP06542F	SI-3050C	+5V Regulator	Signal pwb		x
35	IY03	CK37191R	SI-3018LSA-TL	+1.8V Regulator	Signal pwb	DA	x
36	IY04	CK38711U	TA1360AFG(HIT)	RGB Processor	Signal pwb	DA	x
37	IY05	CK50121R	CD4053BPWR	H Sync/IR Selector	Signal pwb	DA	x
38	IY06	CP05163S	SI-3090F(LF1111)	+9V Regulator	Signal pwb		x
39	IY07	CP05163S	SI-3090F(LF1111)	+9V Regulator	Signal pwb		x
40	UY01	CS00627	HC5627-ASS'Y	Flex control unit	Signal pwb		x

No.	Symbol	P#	Description	Function	Assembly	S.G.	DP47
41	UV01	UE23411	HCY501 ASS'Y	Digital Module	Signal pwb		x
42	EANT	HP00772	UNX ANT SW BOX	ANT SW BOX	Signal pwb		
43	EANT	HP00773	UNX2RF YAA41-0171G	ANT SW BOX	Signal pwb		x
44	U901	HA01311	POW UNIT DP4X-DM_40W	Power supply unit	Signal pwb		x
45	U901	HA01313	POW UNIT DP4X_24W	Power supply unit	Signal pwb		
46	I302	CK37781R	TA1370FG	Sync Separator	Tuner pwb	DA	x
47	U301	HC00495	F-E-V0-A32FT	Analog Main Tuner	Tuner pwb		x
48	U301	HC00512	F-E-ENGE6106DR	Analog Main Tuner	Tuner pwb		
49	U302	HC00464	F-E-ENG36626G	Analog Sub Tuner	Tuner pwb		
50	U302	HC00504	F-E-V0-A69FT	Analog Sub Tuner	Tuner pwb		x
51	IJ01	CK39656R	BR24L02FJ-WE2	E2PROM for EDID	HDMI pwb	DA	x
52							
53	IJ03	CK39811U	SII9993CTG100	HDMI IC	HDMI pwb	DA	x
54	IJ04	CK32011R	TC74HC151AF	SPDIF Buffer	HDMI pwb	DA	x
55	IJ05	CK39821R	PCM1754DBQ	Audio DAC	HDMI pwb	DA	x
56	IJ06	CK07141R	BA4558F-E2	Audio AMP/Filter	HDMI pwb	DA	x
57	I601	CZ00761U	LA7846N	Ver. Def. OUT	Deflection Pwb		x
58	IH01	CP07091	M62501P	HV control	Deflection Pwb		x
59	IH02	CP04234	BA09T	+9.0V Regulator	Deflection Pwb		x
60	IK01	CP02411	KIA7805PI	+5.0V Regulator	Deflection Pwb		x
61	IK02	CP05011R	PST994D-T	Mute IC	Deflection Pwb	C	x
62	IP01	CP08451U	MCZ3001DB	Power Control IC	Deflection Pwb		x
63	IP02	CP08261U	IC H11A817B-300W	OPT. Isolator	Deflection Pwb		x
64	IP03	CP08461U	EK1115	+B(115V) Regulator	Deflection Pwb		x
65	Q701	2328102	FN-521	Side Pin corr. OUT	Deflection Pwb		x
66	Q777	CF03031F	2SC6012	Hor. Def. OUT	Deflection Pwb		x
67	QH01	CF01583F	2SK2771-01R-F168R	HV OUT	Deflection Pwb		x
68	T701	BT01232	PT-EE28F05US-HOT-DP3	HOT	Deflection Pwb		x
69	T702	BZ03061	LX-DRIVE TRANS.-DJ81	Hor Drive Transformer	Deflection Pwb		x
70	TF01	BT02143	PT-EE22F06U-DP25H	Dynamic Focus Transformer	Deflection Pwb		x
71	TH02	BW03171	HVTFBT HFL1535AP-RC	FBT	Deflection Pwb		x
72	TP01	BT02251	PT-EE39F12I-ST-1914E	SW Transformer	Deflection Pwb		
73	TP01	BT02252	PT-EE39F12I-ST-1914F	SW Transformer	Deflection Pwb		x
74	UKDG	CS00831	HC2611-ASS'Y	Digital Conv Unit	Deflection Pwb		x
75	HM02	CZ01161	GP1UM281QK	IR module	IR pwb		x
76	IB01	CP07801U	TA1317AN	Deflection control	Def sub pwb		x
77	IB02	2362606	NJM4558D	Gain Amp(side pin corr)	Def sub pwb		x
78	IB03	CP05163S	BI-3090F(LF1111)	+9.0V Regulator	Def sub pwb		x
79	IK40	CZ01142	STK394-250	Conv. Amp	Conv Amp pwb		x
80	IK41	CZ01142	STK394-250	Conv. Amp	Conv Amp pwb		x

No.	Symbol	P#	Description	Function	Assembly	S.G.	DP47
81	HM01	CZ01171	GP1UM281RK	IR module	Control pwb		x
82	Q801	2327471F	2SC3950H1T-CD	R Video OUT	CPT pwb		x
83	Q803	2312372F	TRS-2SC3942	R Video OUT	CPT pwb		x
84	Q804	2312773F	TRS-2SA1546(2)M/L	R Video OUT	CPT pwb		x
85	Q805	2312372F	TRS-2SC3942	R Video OUT	CPT pwb		x
86	Q851	2327471F	2SC3950H1T-CD	G Video OUT	CPT pwb		x
87	Q853	2312372F	TRS-2SC3942	G Video OUT	CPT pwb		x
88	Q854	2312773F	TRS-2SA1546(2)M/L	G Video OUT	CPT pwb		x
89	Q855	2312372F	TRS-2SC3942	G Video OUT	CPT pwb		x
90	Q8A1	2327471F	2SC3950H1T-CD	B Video OUT	CPT pwb		x
91	Q8A3	2312372F	TRS-2SC3942	B Video OUT	CPT pwb		x
92	Q8A4	2312773F	TRS-2SA1546(2)M/L	B Video OUT	CPT pwb		x
93	Q8A5	2312372F	TRS-2SC3942	B Video OUT	CPT pwb		x
94	QE06	2315381	TRS-2SA1837	R VM out	CPT pwb		x
95	QE07	2315391	TRS-2SC4793	R VM out	CPT pwb		x
96	QE56	2315381	TRS-2SA1837	G VM out	CPT pwb		x
97	QE57	2315391	TRS-2SC4793	G VM out	CPT pwb		x
98	QEA6	2315381	TRS-2SA1837	B VM out	CPT pwb		x
99	QEA7	2315391	TRS-2SC4793	B VM out	CPT pwb		x
100							
101	I302	CK37781R	TA1370FG	Main Component Sync Sep	Tuner pwb	DA	x
102							
103	**U901**	**HA01312**	**POW UNIT DP4X-DM_24W**	**Power supply unit**	**Signal pwb**		
104							
105							
106							
107							
108							
109							
110							

HITACHI
Inspire the Next

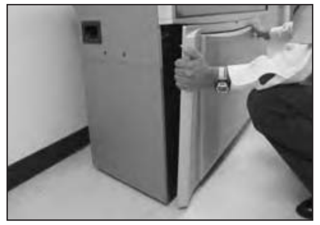
DISASSEMBLY / ASSEMBLY INSTRUCTIONS FOR HITACHI 65 INCH SPLIT PROJECTION TELEVISION

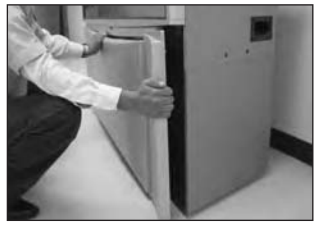
IMPORTANT POINTS:
(a) Do not attempt to perform this work by yourself.
(b) Request an installation specialist to install this unit.
(c) HITACHI assumes no responsibility or liability for injury/damage as a result of consumer installation and handling. Be advised that improper consumer installation/handling is not covered by manufacturer's warranty.

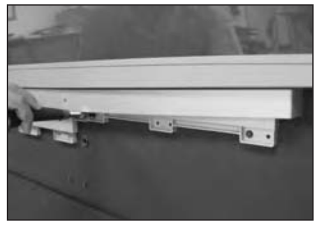
CAUTION: DISCONNECT UNIT FROM POWER SOURCE BEFORE DISASSEMBLY / ASSEMBLY

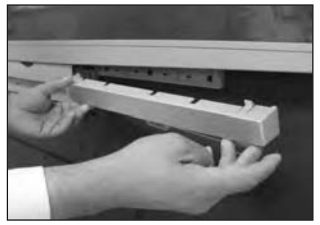
1 - SEPARATION PROCEDURE (Note: read all instructions and understand how to properly and safely disassemble and assemble unit)

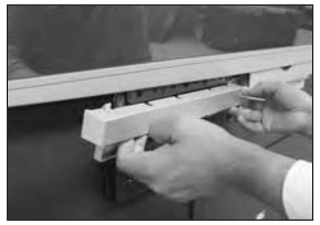
STEP 1 Before disassembling this projection TV set, you must first remove the speaker grille by grabbing the sides and pulling left and right side see (a)(b). Remove the front decoration panels by unscrewing the 2 screws from each panel, see (c), then remove from the original position, see (d)(e).

(a)


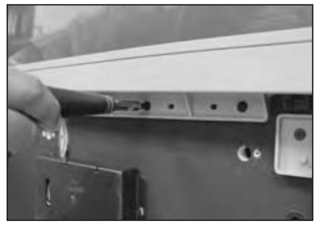
(b)


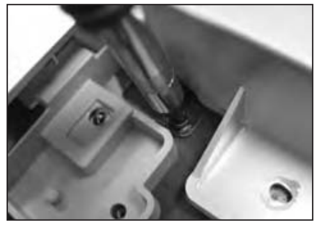
(c)


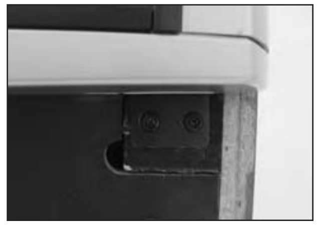
(d)


(e)


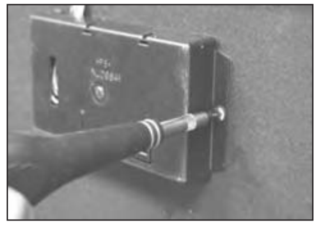
STEP 2 Remove the 8 screws that hold the screen frame to the cabinet on the front side. DO NOT remove the right and left edge screen frame screws (c).

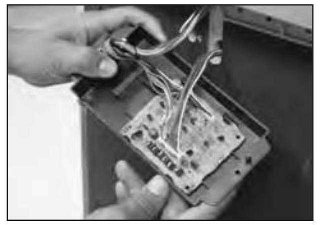
(a)


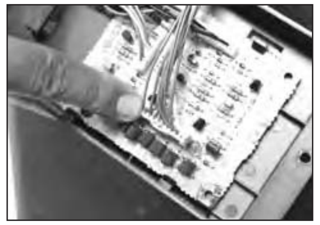
(b)


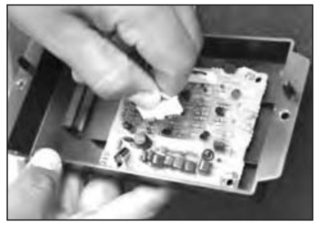
(c)


STEP 3 Remove the sensor box by unscrewing the 2 screws located on both sides of the sensor box, see (a). Rotate the sensor box and there are 4 low voltage connectors located on the sensor board, see (b). Disconnect wires (PDSE), see (c) and (d). (Make sure to push the center lock on the connector at the unplug time.)

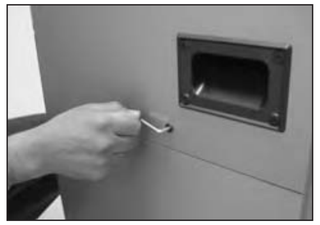
(a)


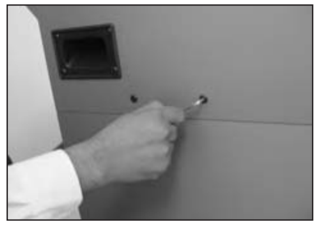
(b)


(c)


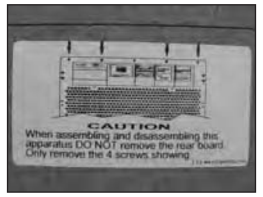
(d)


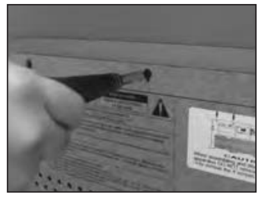
STEP 4 Remove the joint connector bolts from each side of the TV set using the allen wrench that is provided inside of the instruction bag, see (a) and (b).

(a)


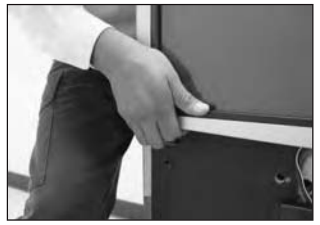
(b)


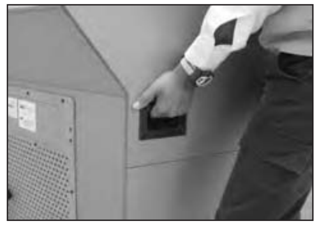
STEP 5 Remove from the back side of the TV set only the top 4 screws of the lower rear cover, see (b), as shown by the arrows on the rear cabinet label, see (a). Do not remove the rear cover board.

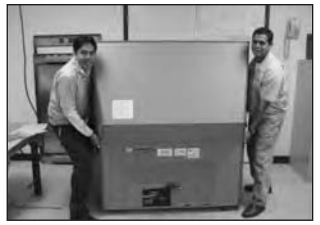
(a)

CAUTION
When assembling and disassembling this apparatus DO NOT remove the rear board.
Only remove the 4 screws showing

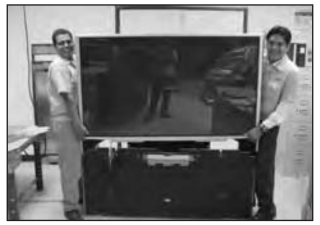
(b)


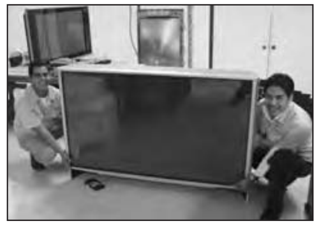
STEP 6 **Caution:** When the TV is separated, the top portion weighs 112 lbs. This task should be done by two persons to carry top portion when separating this TV.
This assembly contains fragile parts, such as glass and the viewing screen. Avoid any type of impact that could cause breakage of these components.
Remove top portion by grabbing the bottom corner of frame and the side of the TV, see (a)(b). Lift upwards, see (c)(d), gently place the top portion on the the floor, see (e).

(a)


(b)


(c)


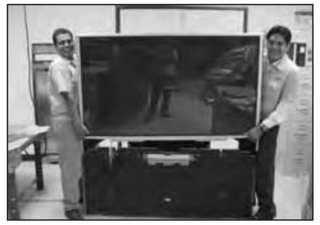
(d)


(e)


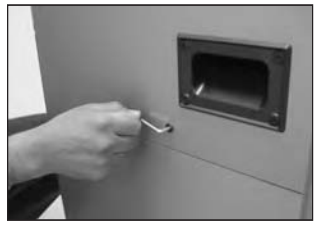
THESE INSTRUCTIONS MUST REMAIN ON UNIT

2 - RE-ASSEMBLY PROCEDURE

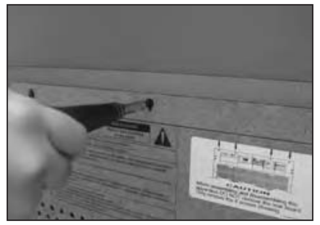
STEP 7 To re-assemble the set, lift the top portion and align onto the bottom cabinet. Gently lower the top portion until it sits flush on the bottom.



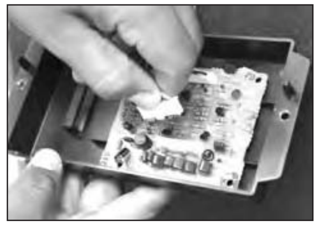
STEP 8 Re-install the joint connector bolts (4 pcs.) that were removed in step 4 of the disassembly.

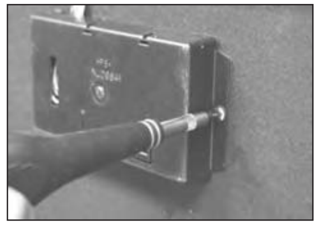


STEP 9 Re-install the top (4) four screws into the lower rear cover, see (a).

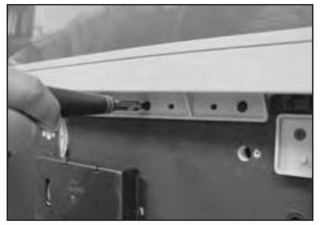
(a)


STEP 10 Re-connect the sensor connector to the sensor board, see (a).
Re-install the sensor box, see (b).

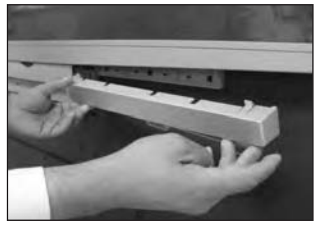
(a)


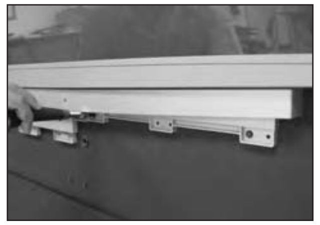
(b)


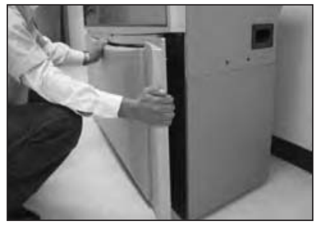
STEP 11 Re-install the 8 screws that hold the frame to the cabinet on the front side of the TV.



STEP 12 Re-install both of the front decoration panels, see (a) and (b) Re-install the speaker grille, aligning it with the bottom cabinet, see (c). This completes the Disassembly and Assembly instructions.

(a)


(b)


(c)


51S715 51 INCH PTV

CS00627	FLEX CONVERTER (HC5627)
CS00831	DCU (HC2611)
HA01311	POWER UNIT DP4X-DM_40W
HL02062	REMOTE CONTROL UNIT CLU-3842WL
HP00773	ANTENNA SWITCH BOX YAA41-0171G
JT24471	DP47 SIGNAL PWB
JT24481	DP47 POWER DEFLECTION PWB
JT24491	DP47 HDMI PWB
JT24501	DP47 CPT / CONTROL PWB
JT24511	DP47 CONVERGENCE OUTPUT PWB
JT24521	DP47 TUNER PWB
KR03142	DP47 SCREEN ASSY 51
KR03261	ULTRASHIELD HC 51W
KS07992	04 51" MODELS MIRROR GLASS
NT04021	FRAME ASSY 51S715
xxxxxxxx	DP4X CHASSIS ASSY
UE23141	DP47 SIGNAL BOARD ASSY
UE23151	DP47 POWER DEFLECTION BOARD ASSY
UE23391	DP47 51 PRT ASSY (R)
UE23392	DP47 51 PRT ASSY (G)
UE23393	DP47 51 PRT ASSY (B)
UE23411	DIGITAL MODULE (HCY501)
X480282	SUB DEFLECTION PWB
61010150	CASTER WHEEL

SIGNAL BOARD ASSY includes Signal, Tuner, HDMI, and Digital Module
POWER DEFLECTION BOARD ASSY includes Power Deflection PWB and Convergence Output PWB

57S715	**57 INCH PTV**
CS00627	FLEX CONVERTER (HC5627)
CS00831	DCU (HC2611)
HA01311	POWER UNIT DP4X-DM_40W
HL02062	REMOTE CONTROL UNIT CLU-3842WL
HP00773	ANTENNA SWITCH BOX
JT24471	SIGNAL PWB
JT24481	POWER DEFLECTION PWB
JT24491	HDMI PWB
JT24501	CPT / CONTROL PWB
JT24511	CONVERGENCE OUTPUT PWB
JT24521	TUNER PWB
KR03143	SCREEN ASSY 57
KR03265	ULTRASHIELD
KS07993	57" MODELS MIRROR GLASS
xxxxxxxxx	CHASSIS ASSY
UE23141	SIGNAL BOARD ASSY
UE23151	POWER DEFLECTION BOARD ASSY
UE23411	DIGITAL MODULE (HCY501)
X480282	SUB DEFLECTION PWB
61010150	CASTER WHEEL

SIGNAL BOARD ASSY includes Signal, HDMI, Tuner, and Digital Module
POWER DEFLECTION BOARD ASSY includes Power Deflection PWB and Convergence Output PWB

The 57" PRT assemblies have been changed mid-production: The difference is the mounting bracket.

Serial Number V1A00001 - V5E009557
Use the following:

UE23394	PRT ASSY (R)
UE23395	PRT ASSY (G)
UE23396	PRT ASSY (B)

Serial Number V5E009557 - V9M999999
Use the following:

UE23394B	PRT ASSY (R)
UE23395B	PRT ASSY (G)
UE23396B	PRT ASSY (B)

HITACHI

ELECTRICAL PARTS DIFFERENCES

DP47			DP45		
CONVERGENCE					
CL10	0880053R	CAP.-POLYESTER 0.047UF-KEB 50V	CL10	0880048R	CAP.-POLYESTER 0.022UF-KEB 50V
CL12	0880053R	CAP.-POLYESTER 0.047UF-KEB 50V	CL12	0880048R	CAP.-POLYESTER 0.022UF-KEB 50V
CL14	0880053R	CAP.-POLYESTER 0.047UF-KEB 50V	CL14	0880048R	CAP.-POLYESTER 0.022UF-KEB 50V
CL16	0880053R	CAP.-POLYESTER 0.047UF-KEB 50V	CL16	0880048R	CAP.-POLYESTER 0.022UF-KEB 50V
RL20	0100123M	RES.-CARBON FLM 1/8W 270K-JB	RL20	0100125M	RES.-CARBON FLM 1/8W 330K-JB
RL21	0700066M	RES.-CARBON FLM 1/16W 82K-JB	RL21	0700064M	RES.-CARBON FILM 1/16W 56K-JB
RL23	0100123M	RES.-CARBON FLM 1/8W 270K-JB	RL23	0100127M	RES.-CARBON FILM 1/8W 390K-JB
RL24	0100125M	RES.-CARBON FLM 1/8W 330K-JB	RL24	0100129M	RES.-CARBON FILM 1/8W 470K-JB
RL25	0700065M	RES.-CARBON FLM 1/16W 68K-JB	RL25	0700066M	RES.-CARBON FILM 1/16W 82K-JB
RL26	0100121M	RES.-CARBON FLM 1/8W 220K-JB	RL26	0100125M	RES.-CARBON FLM 1/8W 330K-JB
RL27	0100119M	RES.-CARBON FLM 1/8W 180K-JB	RL27	0100123M	RES.-CARBON FLM 1/8W 270K-JB
CONTROL					
DM17	CH02711	SLR343 BBT3F (LED BLUE)	NOT APPLIED		
NOT APPLIED			DM22	CH02671	LED SR3517F6 (RED)
KM44	2974432M	JUMPER WIRE (0.5 L=52MM)	NOT APPLIED		
RM68	AT03872M	RES.-1.2KOHM 1/2W RDS50 CARBON FILM	NOT APPLIED		
NOT APPLIED			RM74	AT03866M	RES.-470OHM 1/2W RDS50 CARBON FILM
NOT APPLIED			SM01	FE10402R	PUSH SWITCH SKQNAB
SM08	FE10402R	PUSH SWITCH SKQNAB	NOT APPLIED		
DEFLECTION					
RH27	0100098M	RES.-CARBON FLM 1/8W 24K-JB	RH27	0100100M	RES.-CARBON FLM 1/8W 30K-JB
RH32	0100119M	RES.-CARBON FLM 1/8W 180K-JB	RH32	0100121M	RES.-CARBON FLM 1/8W 220K-JB
SIGNAL					
CA53	0258616	CAP.-ELECTRO 2.2UF-M 50V	NOT APPLIED		
CA54	0258616	CAP.-ELECTRO 2.2UF-M 50V	NOT APPLIED		
NOT APPLIED			D021	2344041M	DIODE 1SS254TA/1SS270TA
PSP	ED00387	PLUG 8P LOCK 2.5MM JST	PSP	ED00385	PLUG 6P LOCK 2.5MM JST
RA23	AQ00196R	RES.CHIP 1/16W 1.2K OHM TAPE	RA23	AQ00203R	RES.CHIP 1/16W 2.2K OHM TAPE
RA24	AQ00196R	RES.CHIP 1/16W 1.2K OHM TAPE	RA24	AQ00203R	RES.CHIP 1/16W 2.2K OHM TAPE
U901	HA01311	MAIN POWER SUPPLY	U901	HA01312	MAIN POWER SUPPLY
FINAL					
U401	GK00911	SPEAKER SP-5CM C057FT511-10	NOT APPLIED		
U402	GK01291	SP-13CM C130RB503-10	U402	GK01301(51")	SP-12CM C120RB514-10
			U402	GK01311(57"/65")	SP-16CM C160RB506-10
U403	GK00911	SPEAKER SP-5CM C057FT511-10	NOT APPLIED		
U404	GK01291	SP-13CM C130RB503-10	U404	GK01301	SP-12CM C120RB514-10
			U404	GK01311(57"/65")	SP-16CM C160RB506-10
UPFK	AZ00165	FOCUS PACK	UPFK	AZ00724(51")	FOCUS PACK
			UPFK	AZ00165(57"/65")	FOCUS PACK

TABLE OF CONTENTS

SERVICE ADJUSTMENTS

TO GO TO AN ADJUSTMENT, CLICK ON ITS HEADING BELOW

1. ASSEMBLED P.W.B ADJUSTMENT 4

1-1. Service Menu Access (NTSC, SDTV and HDTV) 4
1-2. Comb Filter Operation Check 5
1-3. Video Settings Check 5
1-3-1. Color Temperature Check 5
1-4. High Voltage Adjustment 5

2. FINAL ASSEMBLY ADJUSTMENT (Adjustment should be according to below order) 5

2-1. Cut Off Adjustment 5
2-2. DCU Phase Data Setting 6
2-3. Horizontal Position Adjustment (Coarse) 6
2-4. Raster Tilt (Deflection Yoke) 6
2-5. Beam Alignment 7
2-6. Raster Position Adjustment 7
2-7. Beam Form Adjustment 8
2-8. Side Pin Distortion, Vertical Size, Horizontal Size, Trapezoid Distortion Adjustment 8
2-9. Lens Focus 9
2-10. Static Focus 11
2-11. Digital Convergence 11
    2-11-1. Magic Focus Character Set Up 12
    2-11-2. Magic Focus Pattern Set Up 13
    2-11-3. Convergence Jig Screen Specification 17
    2-11-4. Raster Position Adjsutment 18
    2-11-5. Convergence Point Adjustment 18
    2-11-6. Magic Focus Initialize 19
2-12. Blue Defocus Adjustment 20
2-13. White Balance Adjustment 21
2-14. Sub Brightness Adjustment 21
2-15. Sub-Picture Signal Amplitude Adjustment 22
2-16. Horizontal Position Adjustment 23
2-17. Scanning Area Check 23
2-18. Bottom Panel Distortion Check 24
2-19. Side Panel Distortion and Top/Bottom Panel Distortion Check 24

***IMPORTANT**
For many of the above adjustments, it is necessary to have an HDTV (1080i or 720P) signal generator, SDTV (480P) signal generator, as well as the usual NTSC (480i) signal generator.
Hitachi recognizes that few companies offer HDTV or SDTV signal generators and that the cost of these generators is sometimes prohibitive. For this reason, we suggest the use of a set-top-box for HDTV and SDTV adjustments. Usually, there is a switch on the set-top-box which enables it to output HDTV (1080i or 720P) or SDTV (480P) signals even with no input. In this case, the sync is automatically detected by the TV (at the Y-$P_B P_R$ Inputs on the rear panel).

TABLE OF CONTENTS

1. ASSEMBLED P.W.B. ADJUSTMENT

1.1 Service Menu Access

Adjustment Procedure

(1) Press and hold INPUT key on Control Panel and then press POWER key on control panel to access I²C adjustment mode.

(2) Receive signal on main picture. (NTSC, SDTV or HDTV).
Some menu pages have I²C adjustments for SDTV and HDTV. The set will automatically allow you to set these items only when a SDTV or HDTV signal is input to the COMPONENT jacks on the back of the TV. ...... See table below.

(3) Check the OSD according to table on the following pages, using CURSOR ▲, ▼ on Remote Control.
*: Adjustable Data
Others: Fixed Data (be careful not to change)

(4) Press EXIT key to exit I²C ADJUST mode.

NOTES: (1) If the TV I²C data is different from the I²C Parameter (of the following pages) for fixed data, change the data.

(2) When exchanging microprocessor or EEPROM and TV is turned on for first time, it requires initialization of Memory Initial of I²C adjustment menu. Press CURSOR ▶ and hold for 3 seconds to initialize memory.

(3) Use FACTORY RESET to set TV to out of factory shipping conditions: Do not use MEMORY INITIALIZE.

IMPORTANT: IN CASES AFTER THE SERVICE PERSON PERFORMS A FACTORY RESET OR MEMORY INITIALIZE, **YOU MUST UPLUG TV AND PLUG BACK IN.**

BACK TO ADJUSTMENTS

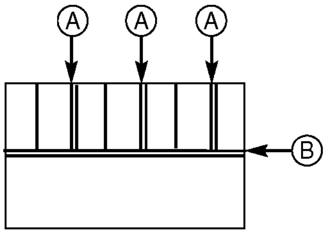
1.2 Comb filter operation check

Adjustment preparation

(1) Receive the color bar signal at the regular tuning point.
(2) Set the CONTRAST control to MAX and the other controls to center.

Adjustment procedure

(1) Check line dots condition at border of each color A, B as follows.



Check Ⓐ and Ⓑ line dots.

3D Y/C
Dots
Ⓐ None
Ⓑ None

1.3 Video Settings (Advanced Settings) Check

1.3.1 Color Temperature Control Check

Adjustment preparation

(1) Receive the white raster signal.
(2) Set the video controls to normal conditions.

Adjustment procedure

(1) Select the Video mode using the ▲▼ buttons and press Select button.
(2) Select Color Temperature option using the ▲▼ buttons and press Select button.
(3) Select MEDIUM using ◀▶ buttons and Picture will turn reddish slightly.
(4) Select STANDARD using ◀▶ buttons and Picture will turn more reddish.
(5) Select Black & White using ◀▶ buttons and Picture will turn more and more reddish.
(6) Select HIGH using ◀▶ buttons and Picture will turn bluish.

⚠ **Important:** High Voltage adjustment should NOT be adjusted in field. This is adjusted at factory using precise loads and should NOT be readjusted.

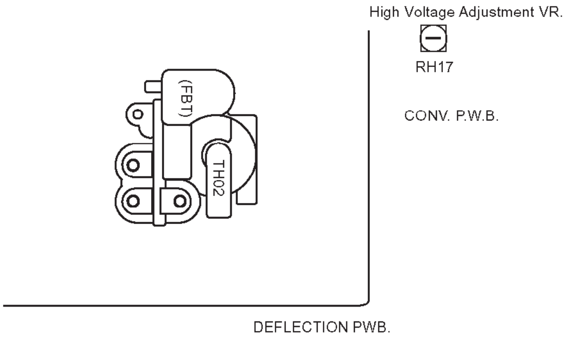
1.4 High Voltage Adjustment (should NOT be readjusted in field).

Adjustment preparation

(1) Connect High Voltage meter to FBT High Voltage output. Connect GND of High Voltage meter to CPT GND or FBT GND.
(2) Check that High Voltage adjustment VR (RH17) is set to mechanical center. (located behind FBT on DEFLECTION PWB).
(3) Receive circle pattern signal.
(4) VIDEO control should be reset.

Adjustment procedure

(1) Adjust High Voltage to following spec. by turning VR RH17 slowly. ADJ. SPEC = 31.7KV±0.2kV.
(2) After adjustment, fix VR RH17 with Silicone glue (KE40RTV).



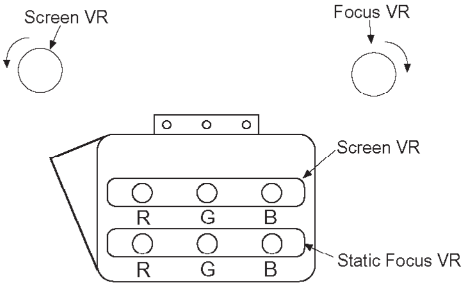
2. FINAL ASSEMBLY ADJUSTMENT

2.1 Cut Off Adjustment

Adjustment preparation

(1) Adjust screen VR's on Focus Pack fully counterclockwise.
(2) Adjust Focus VR's on Focus Pack fully clockwise.
(3) Set video conditions to factory preset.
(4) The vertical incident illumination on the screen should be 20 lux or less (room should be dark).
(5) Pre-heat run time should be at least 20 min.

FOCUS PACK



BACK TO ADJUSTMENTS

Adjustment procedure

1. (1) Press and hold INPUT key on control panel and then POWER ON to access I^2C adjustment mode.
2. (2) Choose "SERVICE" item from I^2C adjustment menu by pressing THUMB STICK ▶.
3. (3) Screen VR should be turned clockwise gradually and set so that retrace line begins to appear.
4. (4) Return to "NORMAL" mode by THUMB STICK ◀ again.
5. (5) Adjust Focus VR's so that focus is even all around screen.

2.2 DCU Phase Data Setting

Adjustment preparation

(1) Cut off adjustment should be finished.
(2) Set video conditions to factory preset.
(3) R/C must be in DCAM mode (see page 47).

Adjustment procedure

(1) Receive any NTSC signal.
(2) Push "SERVICE ONLY" SW on DEF./CONV. PWB. (Enter to DCU ADJ. mode).
(3) Press [C.C] key on R/C. (Green cross hatch is displayed).
Then push EXIT key on R/C. (Character pattern is displayed. This is the PHASE setting mode).
(4) Set PH-H phase data as shown below by using [4] and [6] key on R/C.
(5) Set PH-V phase data as shown below by using [2] and [5] key on R/C.
(6) Set CR-H phase data as shown below by using CURSOR PAD ◀ and ▶ key on R/C.
(7) Set CR-V phase data as shown below by using CURSOR PAD ▲ and ▼ key on R/C.
(8) Push [EXIT] then [C.C] (key on R/C to exit from the PHASE mode.
(9) Press ASPECT key 2 times on R/C to write the phase data to memory.
(10) When Green dots are displayed, push [MUTE] key to return to DCU ADJ. mode.
(11) Push "SERVICE ONLY" SW to return to RF or VIDEO mode.

Normal Mode

PHASE MODE: N

PH-H :F4
PH-V: 07
CR-H: 35
CR-V: 14

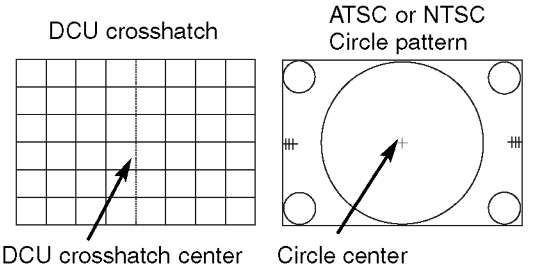
2.3 Horizontal Position Adjustment (Coarse)

Adjustment preparation

(1) DCU PHASE DATA SETTING should be finished.

Adjustment procedure

(1) Receive circle pattern.
(2) Push SERVICE ONLY switch to display DCU crosshatch. Mark the DCU crosshatch center position using your finger tip.
(3) Push SERVICE ONLY switch again to exit from the DCU crosshatch.
(4) Go to I^2C ADJ. mode.
(5) Choose H. POSI item by using up/down cursor key. Adjust horizontal position to match the circle center to DCU crosshatch center (marked by your finger tip).
(6) Exit from I^2C menu.



Remark The "SERVICE ONLY" switch located on the DEF./CONV. PWB.

1080i 16:9 STANDARD

(7) Receive any 1080i Signal (fH=33.75KHz) circle pattern signal (Input to component video terminal).
(8) Repeat steps (2)~(5).
(9) Press SELECT key, then H. POS H will appear. It means HD mode is activated.
(10) Exit from I^2C menu.

2.4 Raster Tilt adjustment (Deflection yoke)

Adjustment preparation

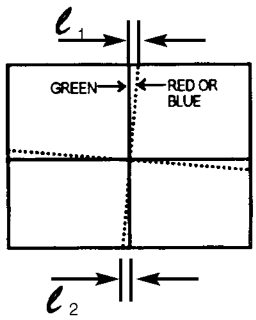
(1) The set can face east or west.
(2) Input the single cross test signal.
(3) Set CONTRAST to MAX, other controls to CENTER.
(4) The lens focus and horizontal position adjustment should have been coarse adjusted.
(5) The electrical focus should have been coarse adjusted.
(6) The digital convergence RAM should be cleared (uncorrected state). With the TV set off, press and hold the "SERVICE ONLY" switch and then press the power button.
(7) Start adjustment 20 minutes or more after TV is turned on.

Adjustment procedure

(1) Short-circuit 2p EH (TS) sub-mini connectors on Red and Blue CPT P.W.B.s to project only the Green beam.
(2) Turn the G deflection yoke and adjust the vertical raster inclination.
(3) Then, remove the shorted wire on the 2p EH(TS) sub-mini connectors on the R or B CPT PWB and project red or blue light and green light together on screen.

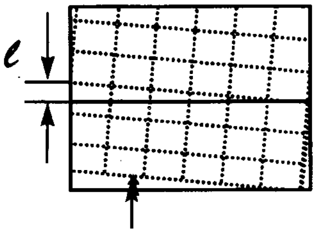
BACK TO ADJUSTMENTS

(4) Turn the deflection yoke of R or B and set so that the inclination of R or B light with respect to the green light is as shown below on the top and bottom sides.
(5) After raster inclination adjustment, the DY screw should be screwed to 10-14kg-cm torque.



$\ell_1, \ell_2 \leq \pm 2$mm

$\ell \leq \pm 2$ mm



CROSSHATCH (GREEN)

Notes: (1) If internal cross-hatch does not appear after clearing RAM data, press service switch again, on DEF./CONV. PWB.
(2) To restore old RAM data, turn TV off and on.

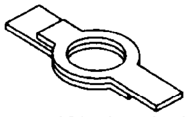
2.5 Beam alignment

Adjustment preparation

(1) Adjust at least 30 minutes after turning on power switch.
(2) Raster tilt should be completed. Raster position, horizontal and vertical size, and optical focus adjustment should be coarse adjusted.
(3) Set video conditions to factory preset.
(4) Receive cross-hatch signal.

Adjustment procedure

(1) Green (G) tube beam alignment adjustment. Short-circuit TS (2p EH) subminiature connector plug pins of Red (R) and Blue (B) on the CPT boards and project only Green (G) light or you may cover the R and B lens.
(2) Put Green (G) tube beam alignment magnet to the cancel state as shown below.



(3) Turn the Green (G) electrical focus (Focus Pack) counterclockwise all the way and make sure of position of cross-hatch center on screen. (Halo state.)
(4) Turn the Green (G) electrical focus (Focus Pack) clockwise all the way. (Blooming state.)
(5) Turn two magnets forming alignment magnet in any desired direction and move cross-hatch center to position found in (3).
(6) If image position does not shift when Green (G) static focus (Focus Pack) is turned. Green (G) beam alignment has been completed.
(7) If image position shifts when Green (G) static focus (Focus Pack) is turned, repeat (2)-(6).
(8) Conduct beam alignment for red (R) and Blue (B) focus: Focus Pack UFPK.
(9) Upon completion of adjustment, fix beam alignment magnets with white paint.

BACK TO ADJUSTMENTS

2.6 Raster position adjustment

Adjustment preparation

(1) The set can face east or west.
(2) Input the single cross test signal.
(3) Set video conditions to factory preset.
(4) The electrical focus should have been coarse adjusted.
(5) The digital convergence RAM should be cleared (uncorrected state). With the TV set off, press and hold the service switch located on the DEF./CONV. PWB and then press the power button.
(6) Start adjustment 20 minutes or more after TV is turned on.

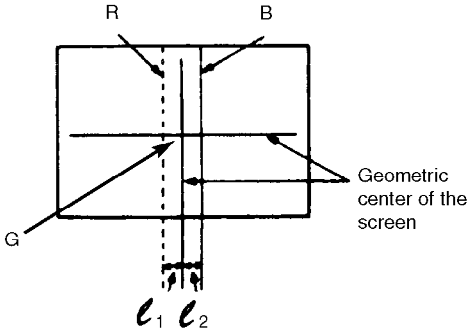
Adjustment procedure

(1) Turn the centering magnets for red, green, and blue to satisfy the condition below. The red and blue horizontal lines should match with green.

	ℓ_1 (RED)	ℓ_2 (BLUE)
51",57",65"	20	25

Tolerance: ± 2mm

Units = millimeters
25.4mm = 1in.



(2) Upon completion of adjustment, fix centering magnets with white paint.

NOTES: (1) If internal cross-hatch does not appear after clearing RAM data, press service switch again.
(2) To restore old RAM data, turn TV off and on.

2.7 Beam form adjustment

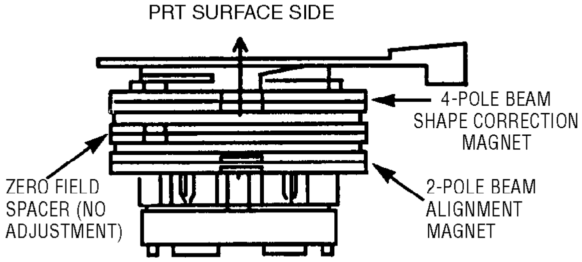
Adjustment preparation

(1) Raster Position should have been completed.
(2) The raster tilt and centering should have been completed.
(3) Set video conditions to factory preset.
(4) Input the dot signal.
(5) Set Aspect to 4:3 Standard Mode.

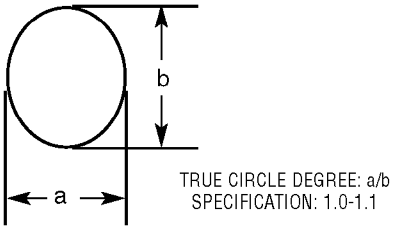
Adjustment procedure

(1) Green PRT beam shape adjustment. Short-circuit TS (2p EH) sub-mini connectors on Red and Blue CPT P.W.B.s to project only the Green beam.
(2) Turn the green static focus VR, on the Focus Pack, fully clockwise. (Blooming)

(3) Make the dot at the screen center a true circle using the 4-pole magnet as shown below.
(4) Also adjust the Red and Blue PRT beam shapes according to the steps (1) to (3).
(5) After the adjustment has been completed, return R, G and B static VRs to the just focus point.
(6) After the BEAM FORM is completed, fix the BEAM FORM magnet with white paint.


PRT SURFACE SIDE
4-POLE BEAM SHAPE CORRECTION MAGNET
ZERO FIELD SPACER (NO ADJUSTMENT)
2-POLE BEAM ALIGNMENT MAGNET

TRUE CIRCLE SPECIFICATION


b
a
TRUE CIRCLE DEGREE: a/b
SPECIFICATION: 1.0-1.1

2.8 SIDE PIN DISTORTION & VERTICAL SIZE & HORZONTAL SIZE & TRAPEZOID DISTORTION ADJUSTMENT

Adjustment preparation

(1) Receive any NTSC signal.
(2) VIDEO control should be set Factory Preset condition.
(3) BEAM FORM adjustment should be finished.

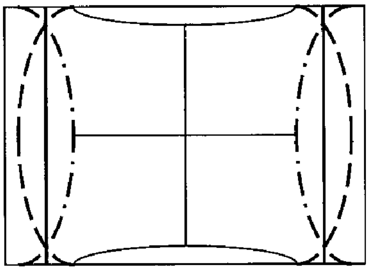
Adjustment procedure

NORMAL MODE

(1) With the unit on, and the R/C in DCAM mode.
(2) Press the service button and press the [MUTE] key on R/C at the same time. Uncorrected crosshatch is displayed.
(3) Press and hold the [MENU] key on the front panel for 3 seconds, then I²C menu is displayed.

SIDE PIN DISTORTION

(3) Choose “EW PARA” (SIDE PIN) item by using [MENU] key and ▼ key.
(4) Adjust SIDE PIN as follows using ◀, ▶ keys.



Left and right side edge of vertical DCU cross-hatch line should be straight condition.

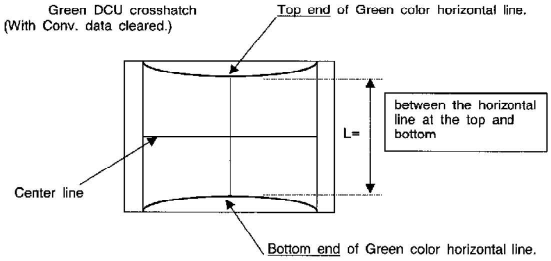
NOTE: If it’s impossible to adjust the straight line, set a little pin condition.

VERTICAL SIZE

(5) Choose “V SIZE” item by using ▲, ▼ keys.
(6) Adjust V SIZE as follows using ◀, ▶ keys.

ℓ	V. Size Specification
51”	560
57”	625
65”	710

Tolerance: ± 5mm
Units = mm

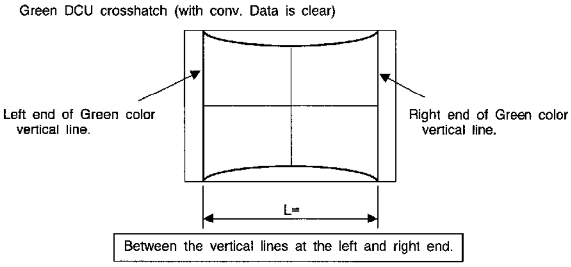

Green DCU crosshatch (With Conv. data cleared.)
Top end of Green color horizontal line.
L=
between the horizontal line at the top and bottom
Center line
Bottom end of Green color horizontal line.

HORIZONTAL SIZE

(3) Choose “H SIZE” item by using▲, ▼ keys

ℓ	H. Size Specification
51”	1070
57”	1195
65”	1365

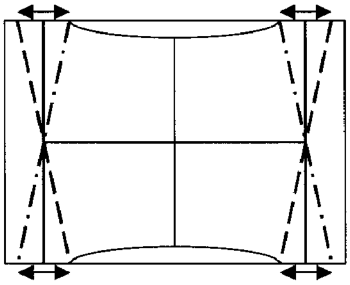
Tolerance: ± 5mm
Units = mm


Green DCU crosshatch (with conv. Data is clear)
Left end of Green color vertical line.
Right end of Green color vertical line.
L=
Between the vertical lines at the left and right end.

BACK TO ADJUSTMENTS

TRAPEZOID DISTORTION

(9) Choose “EW TRAP” (TRAPEZOID) item by using ▲, ▼ keys.
(10) Adjust TRAPEZOID as follows using ◀, ▶ keys.
(11) After adjustment, press [EXIT] key on R/C and SERVICE ONLY SW to exit from DCU Crosshatch.



Vertical Screen frame line & edge of vertical DCU cross-hatch line should be Prallel condition.

2.9 LENS FOCUS ADJUSTMENT

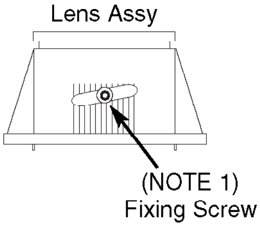
Adjustment preparation

(1) The orientation of PTV set is arbitrary, west, east, north and south.
(2) Centering DY inclination should have been adjusted.
(3) Static focus adjustment should have been coarse adjusted.
(4) Drive VR location adjustment should have been completed. (Red : 12 O'clock, Green : 1~2 O'clock).
(5) Receive the cross-hatch pattern signal.
(6) Refer to setup below.
CONTRAST : HALF of full scale.
BRIGHTNESS : minimum

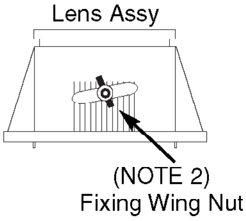
Adjustment procedure

(1) Loosen the fixing screw or wing nut on the lens cylinder so that the lens cylinder can be turned. (Be careful not to loosen too much). After completing steps (4), (5), (6) below, tighten the fixing screws or wing nuts for each lens with a torque of 1.18N.m (12Kgf cm) ~ 1.67N.m (17Kgf cm).

(Be careful the lens cylinder does not turn after having tightened the screw or wing nuts. If it is tightened too much, lens may tilt or screw may break.)

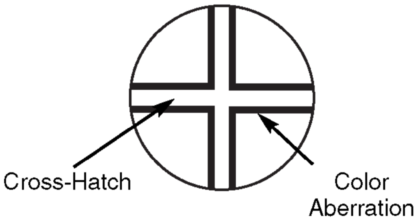


TYPE 1



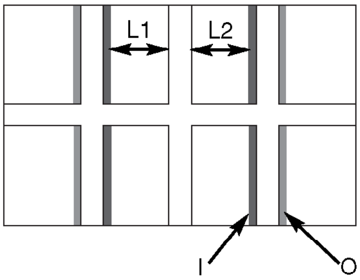
TYPE 2

(2) Apply covers to each color of R, G and B lenses. And project a single color on the screen and adjust in sequence. (The adjustment order of G, R and B is only an example.)
(3) If the lens adjustment knob is turned clockwise viewed from the front, the color Aberration change as follows.



	Change of Color Aberration	
	Short focus	Long focus
RED LENS	Orange	Scarlet
GREEN LENS	Blue	Red
BLUE LENS	Purple	Green

(4) In case of G lens. Set to the point where the chromatic aberration switches from blue to red. If the chromatic aberration appearing all over the screen is not the same, observe the vertical bright line and adjust lens focus as specified in table below. When the red chromatic aberration appearing at both sides of the bright line is not equal, observe the side with larger chromatic aberration when adjusting.



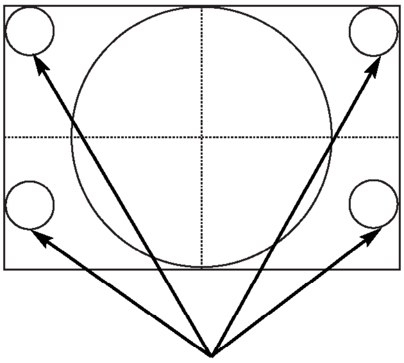
BACK TO ADJUSTMENTS

OPTICAL FOCUSING ADJUSTMENT GREEN

CHASSIS		DP45		
SCREEN SIZE		51”	57”	65”
L1 and L2 (PITCHES from CENTER)		1.0	1.0	3.0
COLOR ABERRATION	BETWEEN L1&L2	*	*	*
	I	* 2.0mm MAX	* 3.0mm MAX	* 3.5mm MAX
	O	** 2.0mm MAX	* 3.0mm MAX	* 3.5mm MAX

(NOTE) * Slightly reddish or no color
** Slightly bluish or no color

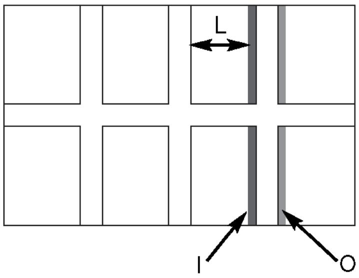
Change the signal to the circle pattern and fine adjust. Observe the corner part of the screen, especially observe number in the small circle when adjusting. If the focus performance at the screen center exceeds the lower limit, it is acceptable.



Small circle of circle pattern

NOTES:
1. Since the G light is very important for picture quality and performance, pay special attention in its adjustment.
2. Be careful not to touch the lens with your fingers when adjusting.

(5) In case of R lens. Set the position where the chromatic aberration changes from red to crimson. As shown below, observe the vertical bright line and adjust lens focus where the crimson or red chromatic aberration slightly appears inside, and crimson or red outside (reference value : 1~3mm) at the point specified in table below. Change the signal and fine-adjust the same way as the G lens.



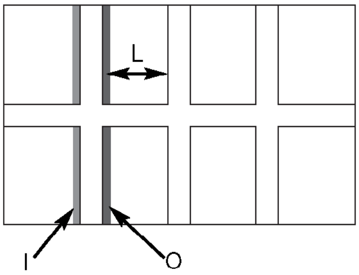
NOTE: Setting the center between Red and crimson is optimum.

OPTICAL FOCUSING ADJUSTMENT RED

CHASSIS		DP45		
SCREEN SIZE		51”	57”	65”
L1 and L2 (PITCHES from CENTER)		3.0	3.0	3.0
COLOR ABERRATION	BETWEEN L1&L2	*	*	*
	I	* 2.0mm MAX	* 3.0mm MAX	* 3.5mm MAX
	O	** 2.0mm MAX	* 3.0mm MAX	* 3.5mm MAX

(NOTE) * Slightly reddish or no color
** Slightly crimson or no color

(6) In case of B lens. Set the position where the chromatic aberration changes from purple to green. As shown below, observe the vertical bright line and adjust lens focus where the purple or green chromatic aberration slightly appears inside and purple or green outside (reference value : 1~3mm) at the point specified in table below. Change the signal and fine-adjust in the same way as the G lens.



NOTE: Setting to the center between purple and crimson is optimum.

BACK TO ADJUSTMENTS

OPTICAL FOCUSING ADJUSTMENT BLUE

CHASSIS		DP45		
SCREEN SIZE		51”	57”	65”
L1 and L2 (PITCHES from CENTER)		3.0	3.0	3.0
COLOR ABERRATION	BETWEEN L1&L2	*	*	*
	I	* 2.0mm MAX	* 3.0mm MAX	* 3.5mm MAX
	O	** 2.0mm MAX	* 3.0mm MAX	* 3.5mm MAX

(NOTE) * Slightly reddish or no color
** Slightly greenish or no color

(7) After all colors have been adjusted, display all colors with the cross-hatch pattern signal and check the focus performance.
(8) Then, select the circle pattern signal and check the focus performance of each color and all colors together.
(9) If the focus performance is not acceptable re-adjust step (1) to (6).

2.10 STATIC FOCUS ADJUSTMENT

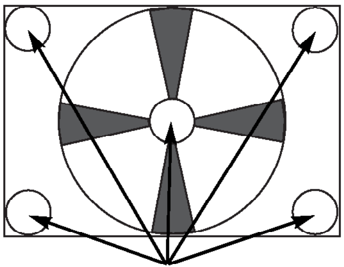
Adjustment preparation

(1) LENS FOCUS adjustment should be finished.
(2) Contrast : MAX
Brightness : Center.
(3) Receive the 480i/480p circle pattern signal & 1080i circle pattern.
(4) Apply covers to the lens of the colors you are not adjusting and project only one color on the screen.

Adjustment procedure

(1) Red and blue static focus adjustment. Adjust the static focus VR on Focus pack (UFPK) so that the center of circle pattern is the most clear. Check that the focus does not get conspicuously worse at the edges of the circle pattern signal or cross-hatch signal.
(2) Green static focus adjustment. Adjust the static focus VR on Focus pack (UFPK) (for green) so that the center of circle pattern is the most clear. Check that the focus does not get conspicuously worse at the checking point, the periphery of circle pattern cross-hatch signal.

NOTE: Checking point for the periphery of picture.



Checking point

2.11 Digital convergence adjustment

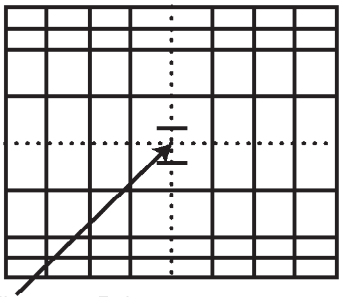
Note: 1. If replacing a PRT, DY, etc. perform auto-digital convergence first. (Press front panel MAGIC FOCUS switch). This can eliminate the need for a complete digital convergence alignment.

2. To enter digital convergence adjustment mode without removing the front speaker grill, please do the following:

1) Press “Magic Focus” button on the front panel.
2) While “Magic Focus” is running, press Magic Focus button again to “Stop”.
3) Press INFO button after “STOP” OSD appears on the screen to enter digital convergence mode.
4) Proceed with convergence adjustment and save the data.
5) Do MAGIC FOCUS sensor initialization.
6) To exit, press POWER button on the front panel.

Adjustment preparation

(1) Receive an RF or video signal.
(2) Set controls to factory preset.
(3) Install jig screen on the set.
(4) Note the center of the video pattern displayed. This is necessary to match dotted lines (adjustment point viewed) and actual point that is adjusted and displayed by the video signal.
(5) Press the service only switch (on DEF./CONV. PWB). The pattern displayed is now the digital convergence mode.
(6) When performing a complete digital convergence adjustment CLEAR DATA in RAM. (With the TV set off, press and hold the service switch located on the DEF./CONV. P.W.B. and then press the POWER button).



Adjustment Point

BACK TO ADJUSTMENTS

2.11.1 MAGIC FOCUS Character Set-Up

This instruction should be applied when a new DCU is being replaced.

Adjustment Preparation

(1) Receive NTSC RF or video signal.
(2) With Power off, PRESS and HOLD the SERVICE ONLY button on DEF./CONV. PWB, then press the Power On/Off, when picture appears release SERVICE ONLY switch (Internal crosshatch is displayed without conv. correction data).
(3) Set R/C to DCAM mode (refer to page 47).
(4) Press the DAY/NIGHT button 2 times for ROM READ operation. Picture will appear with convergence correction data.

Adjustment Procedure

(1) Press (▶) key on R/C. (One additional line appears near the top and near the bottom.)
(2) Press (■) key, then ADJ. PARAMETER mode is displayed as following.

```
ADJ. PARAMETER
ADJ. DISP.:    0F
DEMO WAIT:   1F
INT. START:    13
V. SQUEEZE:  10
```

(3) Press CURSOR PAD ◀ or ▶ to change the ADJ. DISP. data.
(4) Press CURSOR PAD ▼ to access DCU parameter. Change the data as shown on Table 1, DCU Parameter.
(5) Press Aspect key 2 times to write changed data into EEPROM. (First press ADJ. PARAMETER/ROM WRITE? is displayed for alarm. 2nd press, writes data into EEPROM. Green dots appear after completion of operation.)
(6) Press MUTE/VOLUME key 3 times to exit from ADJ. PARAMETER mode.

TABLE 1. - DCU PARAMETER

Parameter	Normal
ADJ. DISP	0F
DEMO WAIT	1F
INT. START	13
V. SQUEEZE	10
INT STEP 1	02
INT STEP 2	06
INT BAR	2D
INT DELAY	01
MGF STEP 1	50
MGF STEP 2	06
MGF BAR	1B
MGF DELAY	01
SEL. STAT.	00
LINE WID	7F
ADD LINE	09
SENSOR CK	00
PORT 0	07
PORT 1	06
PORT 2	05
PORT 3	04
PORT 4	03
PORT 5	02
PORT 6	01
PORT 7	00
AD LEVEL	03
CENT. BAL	01
E. DISPLAY	00
ADJ. TIMS	60
AD LEVEL	05
AD NOISE	0A
OVER. LF-H	01
OVER. LF-V	00
OVER. RI-H	00
OVER. RI-V	00
PHASE MOT	60
H. BLK-RV	0A
H. BLK-GV	03
H. BLK-BV	09
H. BLK-H	20
PON DELAY	0F
IR-CODE	00
INITIAL 50	9E
MGF 50	96
CENTER 50	FE
STAT 50	FE
DYNA 50	9F

BACK TO ADJUSTMENTS

2.11.2 MAGIC FOCUS Pattern Set-Up

NOTE: (1) This instruction should be applied when a new DCU is being replaced.

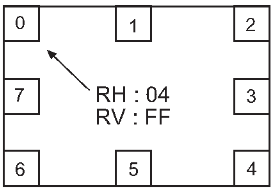
(2) This instruction shows how to set up the pattern position for MAGIC FOCUS.

Adjustment Procedure

(1) Receive NTSC RF or video signal.
(2) With Power off, PRESS and HOLD the SERVICE ONLY button on DEF./CONV. PWB, then press the Power On/Off, when picture appears release SERVICE ONLY button (Internal crosshatch is displayed without conv. correction data).
(3) Set R/C to DCAM mode (refer to page 47).

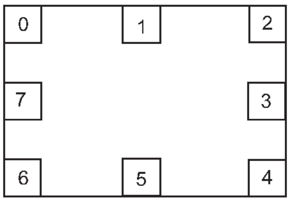
Adjustment Procedure

(1) Press ▶ key on R/C. (One addtional line appears near the top and near the bottom.)
(2) Press C.C. key, then MAGIC FOCUS PATTERN mode is displayed as follows:



(3) Use [6] key on remote control to rotate the arrow. Arrow indicates each sensor position. (Upper left corner, middle top, upper right corner, right middle, in this order).
(4) Use the keys to switch color of pattern.
INFO : Green pattern
0 : Red pattern
INPUTS : Blue pattern
(5) Press CURSOR PAD ◀ or ▶ to change the data value to the horizontal direction. Press CURSOR PAD ▲ or ▼ to change the data value to the vertical direction.
(6) Set the data as shown below:

Pattern Position



Pattern: 51" & 57" (Sensor: 20mm)
Normal Mode

	0	1	2	3	4	5	6	7
RH	04	00	fc	02	fc	00	04	fe
RV	ff	fe	01	00	fe	01	00	00
GH	04	00	fc	02	fc	00	04	fe
GV	ff	fe	ff	00	ff	01	00	00
BH	04	00	fc	02	fc	00	04	fe
BV	ff	fe	ff	00	00	01	ff	00

Pattern: 65"
Normal Mode

	0	1	2	3	4	5	6	7
RH	08	02	f6	fe	f6	02	08	00
RV	04	02	06	00	fb	ff	fe	00
GH	08	00	f8	00	f8	00	08	00
GV	03	01	04	00	fc	ff	fe	00
BH	08	fe	f8	fe	f8	fe	08	00
BV	05	01	02	00	fd	ff	fc	00

(7) Press ASPECT key 2 times to write the changed data in EEPROM. (First press, ROM WRITE ? 2nd press, writes data into EEPROM. Green dots appear after completion of operation.)
(8) Push POWER key (on control panel) to exit from PATTERN mode.

BACK TO ADJUSTMENTS

“Convergence For Outside Signal” function

a) Press Service Switch on DEF/Conv PWB, then display "Normal Crosshatch". (Fig. 1)

⇩

b) Press [MENU] key on R/C, then display "Red + Green Crosshatch with Red Marker" or "Green Crosshatch with Green Marker" or "Blue + Green Crosshatch with Blue Marker". (Fig. 2)

⇩

c) Press [MENU] key on R/C again, then display "Normal Crosshatch on Main Picture" (Fig. 3)

⇩

d) Press [MENU] key on R/C again, then display "Cross Marker + Box Marker on Main Picture". (Fig. 4)

⇩

e) Press [MENU] key on R/C again, then display "only Box Marker on Main Picture". (Fig. 5)

⇩

f) Press [MENU] key on R/C again, then display "Normal Crosshatch" again. (Fig. 1)

And repeat procedure b) ~ f) by each press [MENU] key on R/C.

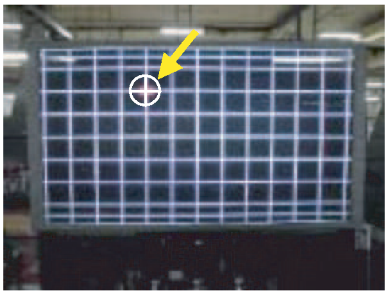


Fig. 1

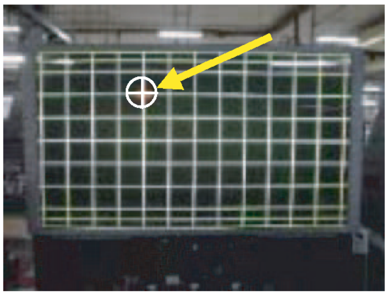


Fig. 2

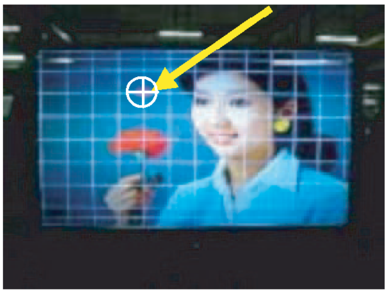


Fig. 3

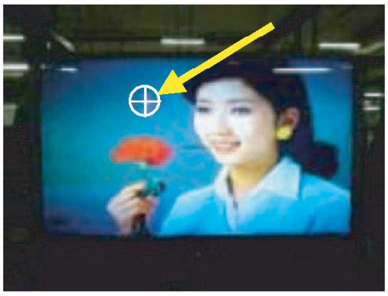


Fig. 4

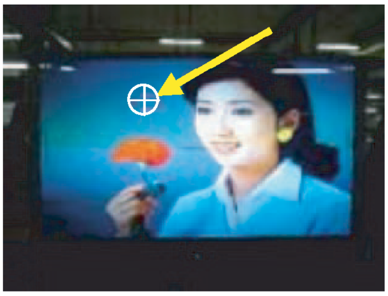


Fig. 5

BACK TO ADJUSTMENTS

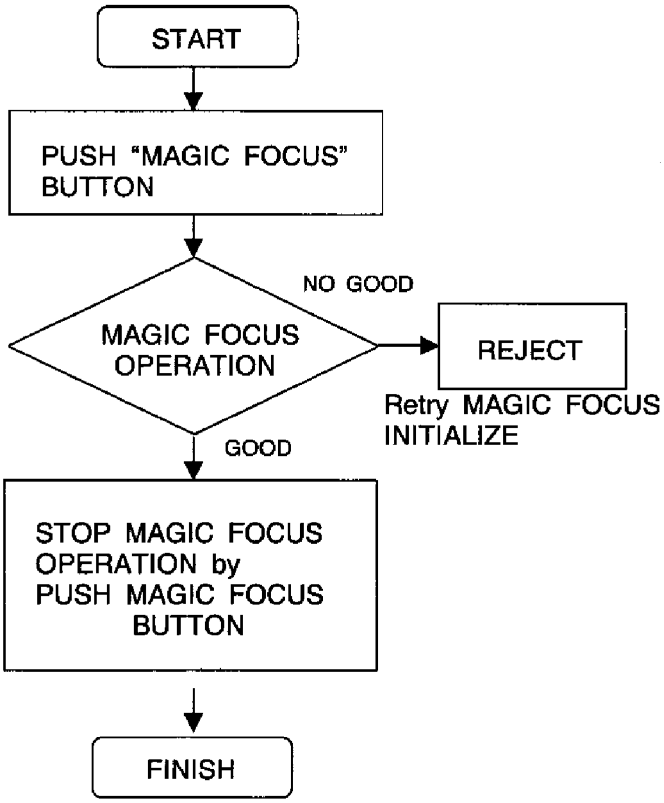
MAGIC FOCUS OPERATION CHECK

Adjustment preparation

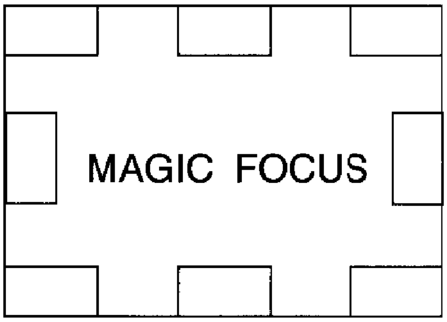
(1) MAGIC FOCUS INITIALIZE OPERATION should be completed.
(2) Receive any NTSC signal.

Adjustment procedure

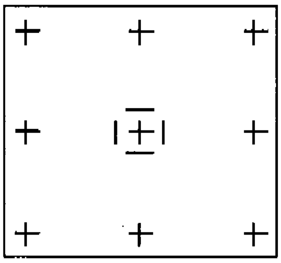
(1) OPERATION CHECK


START
PUSH "MAGIC FOCUS" BUTTON
MAGIC FOCUS OPERATION
NO GOOD
REJECT
Retry MAGIC FOCUS INITIALIZE
GOOD
STOP MAGIC FOCUS OPERATION by PUSH MAGIC FOCUS BUTTON
FINISH

MAGIC FOCUS OPERATION
*GOOD (Several windows)


MAGIC FOCUS

* NO GOOD (9 cross)



DP4X

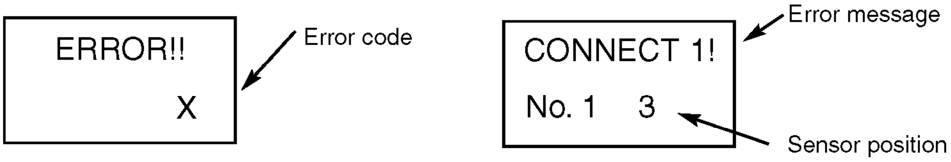
Note:
If there is an error, error code (red) appears for about 1 second in bottom right corner.
Refer to CONVERGENCE ERRORS.

BACK TO ADJUSTMENTS

Convergence Errors.

If an error message or code appears while performing MAGIC FOCUS or initialize (ASPECT , ■ key in DCU service mode) follow this confirmation and repair method.

1. Turn on power and receive any signal.
2. Press service switch on DEF./CONV. board.
3. Set R/C to DCAM mode (refer to page 47).
4. Press “DAY/NIGHT” then ■ key on remote control.
5. Error code will be displayed in bottom right corner of screen. If there is no error, an “INITIAL OK” message will appear on screen.



6. Follow repair table for errors.

DCU REPAIR TABLE

Error Code	Error Display Code	Countermeasure	Application	
			Initialize	Magic Focus
1	VF Error	Replace DCU	X	X
2 *2	Connect 1	1. Darken Outside Light 2. Placing of sensor 3. Is pattern hitting sensor 4. Check connection and solder bridge of sensor 5. Replace sensor 6. Replace sensor P.W.B. 7. Sensor Connector check 8. Replace DCU 9. Adjustment check (H/V size, centering)	X	—
3*2	A/D Level	Same as Error Code 2	X	X
4	Over Flow	1. Check the placement of sensor 2. Adjustment check (H/V size, centering) 3. Conv. amp. gain check *1 (check resistor values only)	X	X
5	Convergence	Same as Error Code 4	X	X
7	Operation	Same as Error Code 4	—	X
9	Connect 2	Same as Error Code 2	X	X
10	Noise	Input strong field signal Check the wiring of connector between sensor and DCU	X	X
11	Sync	Input strong field signal Check the wiring of connetor between sensor and DCU	X	X

*1 -- RK 53, 54, 57, 58, 61, 62, 65, 66, 69, 70, 73 and 74 check these resistors.

*2 Sensor Position

0	1	2
7		3
6	5	4

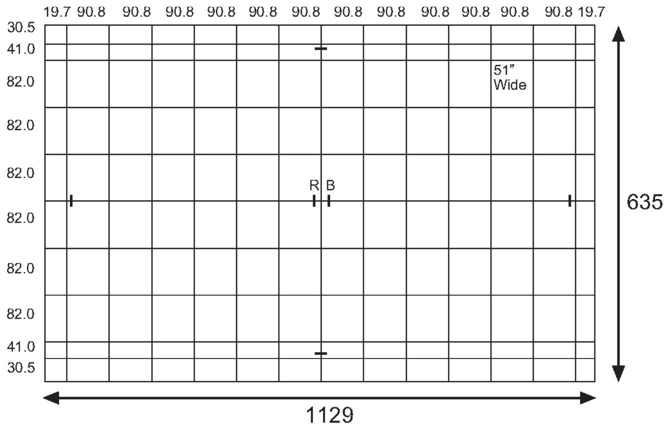
(View from front side)

8 Sensors

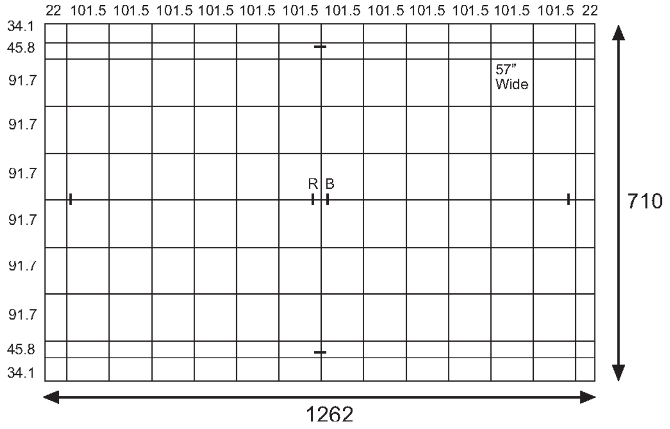
BACK TO ADJUSTMENTS

2.11.3 Convergence Jig Screen Specifications

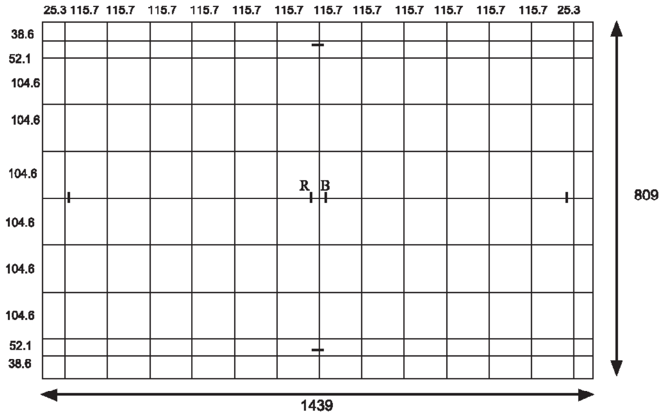
51S715 (Part Number H312272)


19.7 90.8 90.8 90.8 90.8 90.8 90.8 90.8 90.8 90.8 90.8 90.8 90.8 19.7
30.5
41.0
82.0
82.0
82.0
82.0
82.0
82.0
41.0
30.5
51”
Wide
R
B
635
1129

57S715 (Part Number H312273)


22 101.5 101.5 101.5 101.5 101.5 101.5 101.5 101.5 101.5 101.5 101.5 101.5 22
34.1
45.8
91.7
91.7
91.7
91.7
91.7
91.7
45.8
34.1
57”
Wide
R
B
710
1262

65F710


25.3 115.7 115.7 115.7 115.7 115.7 115.7 115.7 115.7 115.7 115.7 115.7 115.7 25.3
38.6
52.1
104.6
104.6
104.6
104.6
104.6
104.6
52.1
38.6
R
B
809
1439

BACK TO ADJUSTMENTS

Note: If only minor adjustments to convergence are needed, the jig screen is not necessary. Use digital data stored in memory and one color as a reference (red, green, or blue). DO NOT CLEAR DATA and WRITE to ROM memory.

2.11.4 Raster position adjustment (minor)

Adjustment preparation

(1) Position adjustment - This will move an entire color. Use this adjustment to match colors at the center of the screen. (Active video center from external signal and physical screen center should now match from phase adjustment).

(2) Use the buttons below to switch color to adjust.
"INFO" - Green
"0" - Red
"INPUTS" - Blue

Adjustment procedure

(1) Press the ▶ button. Extra horizontal lines appear to confirm raster position mode.

(2) Use the thumb stick to adjust position.

(3) Press ▶ again to exit raster position mode.

Notes: (1) Other functions cannot be accessed when in raster position adjustment mode. Press ▶ and confirm extra horizontal lines disappear to exit raster position mode.

(2) Press MENU to remove all colors displayed.

2.11.5 Convergence point adjustment

Adjustment preparation

(1) Select color to adjust.
"INFO" - Green
"0" - Red
"INPUTS" - Blue

(2) Use 4, 6, 2, and 5 to move the cursor position (dotted lines).

(3) Use thumb stick to move the convergence point.

(4) Three adjustment modes are available:
   1. (3x3) Press "INFO" 5 times (only works when DCU is in uncorrected state)
   2. (7x5) Press "0" 5 times
   3. (13x9) Press "INPUTS" 5 times

For touch-up, only the (13x9) mode is necessary. This will adjust every cross-hatch intersection point on the screen.

For complete adjustment, start with (3x3) mode. This will adjust center point and eight edge points only, but will greatly reduce adjustment time. Then use (7x5) mode, and finally (13x9) mode to finish convergence.

If "S" distortion appears between cross-hatch lines repeat (7x5) mode to change calculation process while adjusting to remove distortion, then return to (13x9) mode to finish touch-up convergence.

Adjustment procedure

(1) Receive any NTSC signal.

(2) Start adjustment at the center of the screen.

(3) Continue adjustment at next closest position.

(4) Adjust center area first, ending with edge sections.

(5) Press GUIDE button to perform calculation operation. This process will take about 1 second and no picture will be seen at this time.

(6) After interpolation, check convergence again and repeat (1)-(5) if necessary.

(7) When convergence is acceptable, press ASPECT to write data to ROM memory. ROM WRITE? is displayed to alarm system that ROM will be overwritten with new data. Press the ASPECT button again to write displayed data to ROM.

(8) DATA WRITE TO ROM will take approximately 4 seconds and no picture will be displayed.

(9) Green dots will be displayed when operation is completed.

(10) Push VOLUME down to MUTE to return to convergence pattern, then confirm again convergence is acceptable.

(11) Press ASPECT (ROM WRITE) mode, then press ■ to initialize sensor data positions.

Notes: (1) Display only green for easier adjustment and match to jig screen. Press "MENU", THEN PRESS "INFO".

(2) Perform interpolation and data write to ROM after green adjustment. Once green has been confirmed to match jig screen, the jig screen can be removed. Do not readjust the green color after jig screen has been removed. This is now your reference color.

(3) Display green and red only and match red to green.

(4) Display all colors and match blue to green and red. Touch-up red color if necessary.

(5) Existing DATA in ROM can be read by pressing the DAY/NIGHT button 2 times. This data can be used after replacing a component (CRT, DY, etc.) Where complete convergence adjustment is not necessary, be careful not to overwrite this data. DO NOT write cleared RAM data into ROM or a complete convergence adjustment will be necessary. Remember to try MAGIC FOCUS before starting convergence adjustment to minimize adjustment time.

(6) To confirm and fine tune the convergence at the edge of the screen, press the ■ button on the remote control while in the digital convergence adjustment mode (DCAM) for additional lines at the edge of the screen. Fine tune the edge convergence as necessary. To exit, press ■ again.

BACK TO ADJUSTMENTS

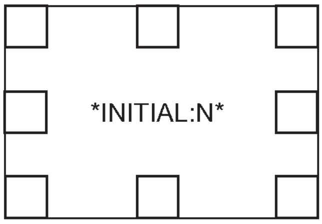
2.11.6 Magic Focus Initialize

Adjustment Preparation

(1) Receive any NTSC signal.
(2) Digital convergence adjustment should have been completed.
(3) Set is in DCU adjustment mode.
(4) Set R/C in DCAM mode.

Adjustment Procedure

(1) Press "ASPECT" and then (■) to initialize Magic Focus. The initialize operation starts and several windows appear during this operation. It takes about 30 seconds or less.
(2) When green dots appear, initialize operation is finished.
(3) Turn power OFF on TV set.



Initialization Operation

REMARKS

Another way to start the initialize operation:

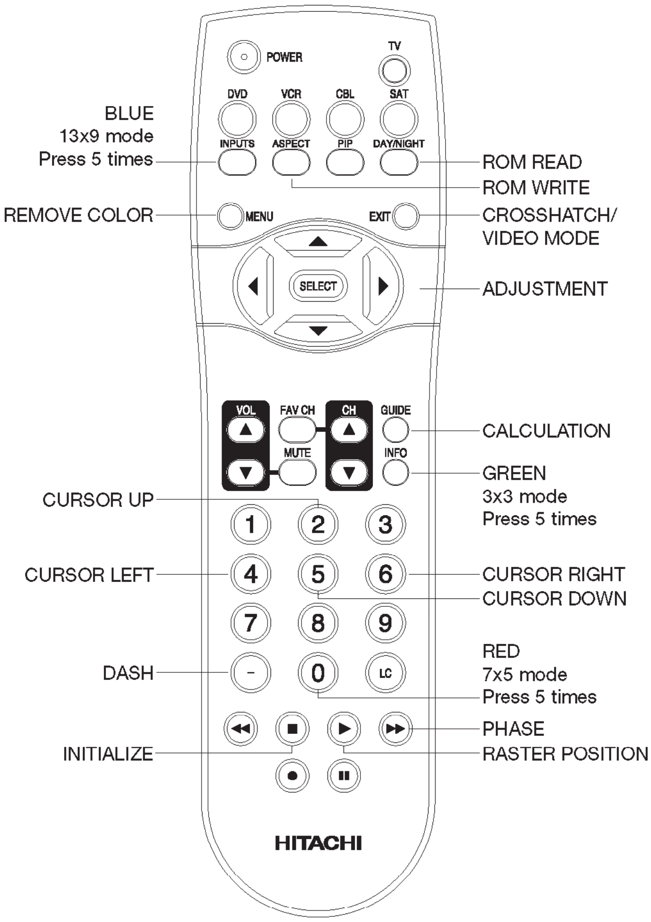
(1) Press "SERVICE ONLY" Sw. on DEF./CONV. PWB to set DCU adj. mode.
(2) Press [ASPECT] key on R/C. Then "ROM WRITE?" is displayed for alarm. Next, press (■) key on R/C to start initialization. When green dots appear, initalization operation is finished.

NOTE: If there is an error message, red dots or an error code, refer to page 44, CONVERGENCE ERRORS.

HITACHI DCU ADJUST SPECIAL MODE

(1) HITACHI DCU Adjust Mode is intended for service use only. Customers should not be given access to this mode.
(2) To place the remote control into DCU Adjust Mode use the following steps:
    a. Set the R/C to TV mode.
    b. While holding down the key "ENT", "MENU" then "INFO" keys.
    c. If the command is successful the TV LED will blink 3 times.
(3) See DCU mode table for IR codes associated with this mode.
(4) To exit the DCU Adjust Mode, the user must program the R/C of TV mode to the Hitachi device (pre-code #1345). Hold down the ENT key, then enter 1, 3, 4, 5 to set R/C to normal TV mode.

Digital Convergence Remote Control


POWER
TV
DVD
VCR
CBL
SAT
INPUTS
ASPECT
PIP
DAY/NIGHT
MENU
EXIT
SELECT
VOL
FAV CH
CH
GUIDE
MUTE
INFO
1
2
3
4
5
6
7
8
9
-
0
LC
HITACHI
BLUE
13x9 mode
Press 5 times
REMOVE COLOR
CURSOR UP
CURSOR LEFT
DASH
INITIALIZE
ROM READ
ROM WRITE
CROSSHATCH/
VIDEO MODE
ADJUSTMENT
CALCULATION
GREEN
3x3 mode
Press 5 times
CURSOR RIGHT
CURSOR DOWN
RED
7x5 mode
Press 5 times
PHASE
RASTER POSITION

NOTE: If the R/C is left in DCAM, the many TV controls will not work. To check, see if the mode selection can be made. It can not be move out of TV mode, then R/C needs to return to TV mode. Press and hold ENT key and enter 1, 3, 4, 5.

BACK TO ADJUSTMENTS

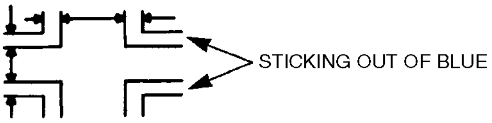
2.12 Blue Defocus adjustment

Adjustment Preparation

(1) Optical and electrical focus adjustment should have been completed.
(2) The convergence adjustment should have been completed.
(3) Set Video conditions to factory preset.
(4) Input the cross-hatch signal.

Adjustment procedure

(1) Turn the B Focus VR (Focus Pack) fully clockwise.
(2) Adjust sticking out level of blue to specification shown in table below, by turning the (B) FOCUS VR counter clockwise.



UNEVENNESS SPECIFICATION: ±1cd/m^2

Defocus sticking out specification

Screen Size	Blue sticking out
51",57",65"	1.0mm

Condition: User controls are set to the initial set positions (for shipment)

Measuring point-Screen center.

2.13 White balance adjustment

(1) Screen adjustment
(2) High light white balance.
(3) Low light white balance.

I^2C data for High light white balance

Green : G DRIVE (HIGH) 3F (initial data)(Adjustable)
Red : R DRIVE (HIGH) 3F (initial data)(Adjustable)

I^2C data for Low light white balance

Green : G CUT OFF (HIGH) 7F (initial) (Fixed data)
Red : R CUT OFF (HIGH) 7F (initial) (Adj. data)
Blue : B CUT OFF (HIGH) 7F (initial) (Adj. data)

Adjustment Preparation

(1) Adjustment should start 20 min. or more after the TV power is turned ON.
(2) CUT OFF ADJ. should be finished.
(3) VIDEO control : Contrast is MAX., Others are center.
(4) Color temp. : HIGH
(5) Signal:
  * Hight Light white Balance Adj.
    White raster 0.715Vpp (w/o sync., termination incidence : 75ohm.) 100IRE
  * Low Light white balance ADJ.
    White raster 0.180Vpp (w/o sync., termination incidence : 75ohm.) 25 IRE (The brightness equal to 20cd/m^2 at screen center.
(6) BLUE defocus ADJ. should be finished.
(7) The vertical incident illumination on the screen should be 20 Lux. or less.
(8) Picture Format is 16:9 Standard Mode.
(9) Go into I^2C service mode.

Table 1: White Balance Adjustment Signal

Screen Size		51", 57" and 65"
High light	[IRE]	100
	[Vpp]	0.715
Low light	[IRE]	25.0
	[Vpp]	0.175

Table 1 shows amplitude of White raster (without sync, termination impedence: 75ohm).

Table 2: White Balance Adjustment Specification

Size	Highlight	Lowlight
51" 57" 65"	10800K±0MPCD (x=0.277 ± 0.004, y=0.284 ± 0.004)	10800K±0MPCD (x=0.277 ± 0.004, y=0.284 ± 0.004)

Adjustment Procedure

A. High Light W/B adjustment

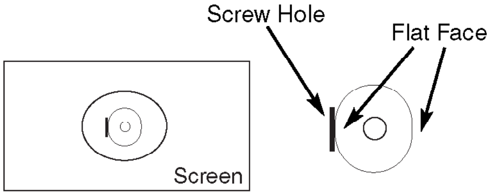
(1) Receive signal for High Light white balance ADJ.
(2) Adjust white balance at center of screen, using R DRV/ G DRV within I^2C adjust mode (see Table 2).

B. Low Light W/B adjustment

(1) Receive signal for Low Light white balance ADJ.
(2) Adjust white balance to center of screen, using R CUT OFF/G CUT OFF/B CUT OFF within I^2C adjust mode. Do not touch screen VRs (see Table 2).
(3) Take Green color as a reference color, then adjust Low Light W/B by increasing other two colors CUT OFF data. Do not change GREEN CUT OFF data. CA-100 Probe should be set to a direction as shown below.

Repeat A & B two or three times, until no adjustment is needed (white balance tracking-GOOD). If W/B tracking is not good, set all data (Both DRV and CUT OFF) to inital data, and change reference color to different color.

Note: If Low Light adj. spec cannot be followed, apply previous adj. spec. (adjust by eye.)



Set probe to above direction. (Screw hole side should be on the left side)

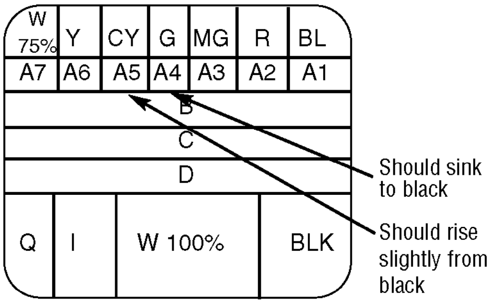
Top view of CA-100 Probe

BACK TO ADJUSTMENTS

2.14 Sub brightness adjustment

Adjustment preparation

1. Start adjustment after the power is turned ON for 20 minutes or more.
2. Receive the color bar signal.
3. The vertical incident illumination on the screen should be 20 lux or less. (Room should be dark).
4. Picture Formats is 16:9 Standard Mode.

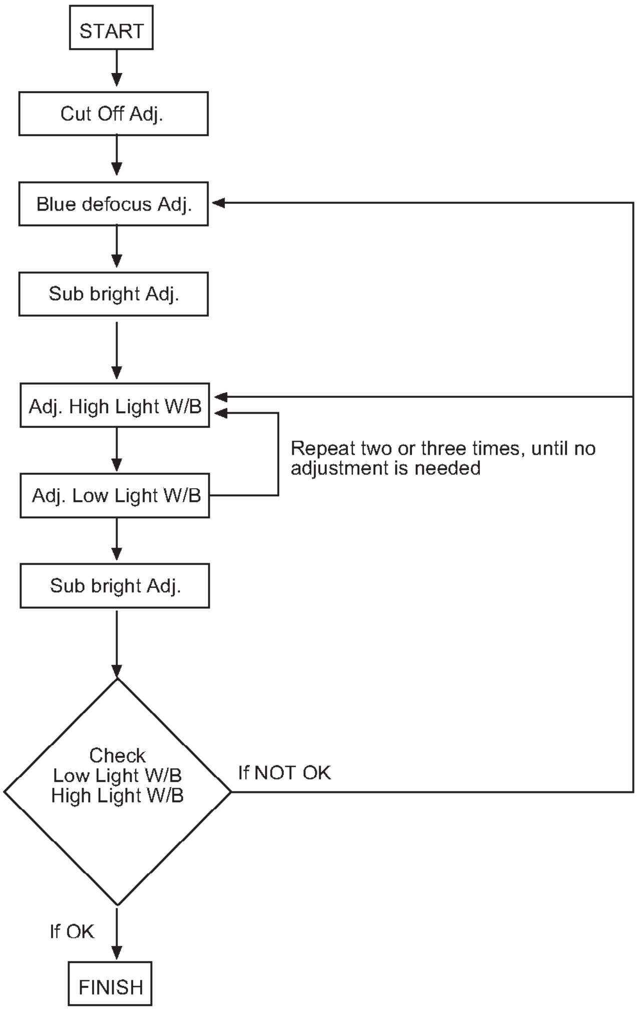

W 75%
Y
CY
G
MG
R
BL
A7
A6
A5
A4
A3
A2
A1
B
C
D
Q
I
W 100%
BLK
Should sink to black
Should rise slightly from black

Adjustment procedure

1. Go to “Sub Brightness” adjustment in I²C ADJUST mode (press Input and Power button on Control panel at same time), using CURSOR ▲, ▼ and then CURSOR ▶.
2. Then adjust “Sub Brightness” using CURSOR ◀, ▶ to increase or decrease the value, according to figure. (Visually adjust).
3. After adjustment, press MENU button to exit I²C ADJUST mode. (Data is stored in memory).

Note: When selecting SUB-BRIGHTNESS mode the microprocessor sets the CONTRAST and COLOR to MIN. automatically, but make sure that the other conditions are center.
Directly observe the screen by eye without using a mirror.

WHITE BALANCE ADJUSTMENT FLOW CHART


START
Cut Off Adj.
Blue defocus Adj.
Sub bright Adj.
Adj. High Light W/B
Adj. Low Light W/B
Repeat two or three times, until no adjustment is needed
Sub bright Adj.
Check Low Light W/B High Light W/B
If NOT OK
If OK
FINISH

BACK TO ADJUSTMENTS

2.15 Sub Picture Signal Amplitude Adjustment

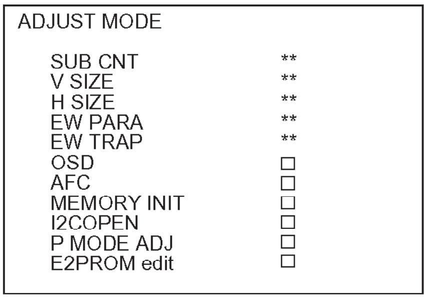
Adjustment preparation

(1) Sub-brightness adjustment should be finished.
(2) Start adjustment about 20 minutes after the power switch is turned on.
(3) Condition should be as follows:
Contrast : Max
Brightness : Center
(4) Press PIP button on R/C unit. Select Split mode.
(5) Receive ANT A NTSC white signal (amplitude 1. 0Vp-p), main-picture and sub-picture. (Do not use Video/S-Video/YPBPR/DVI.)
(6) Connect probe on the P852(CPT P.W.B.-Green) to check sub-picture amplitude.

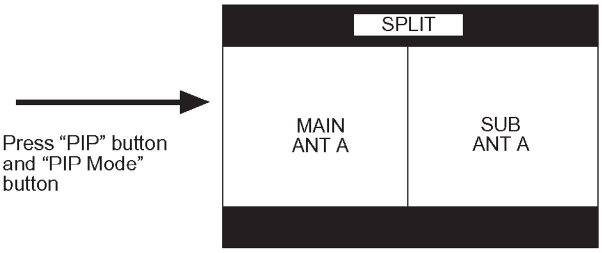
Adjustment procedure

(1) Go to "SUB CONT(TV-S)" adj. on the I²C service mode.
(2) Press "PIP" button and "PIP Mode" button of R/C.
(3) Observe P852 on the CPT P.W.B. and change the "SUB CONT(TV-S)" I²C data so that the amplitude of the sub-picture is the same level as that of the main picture.

DISPLAY

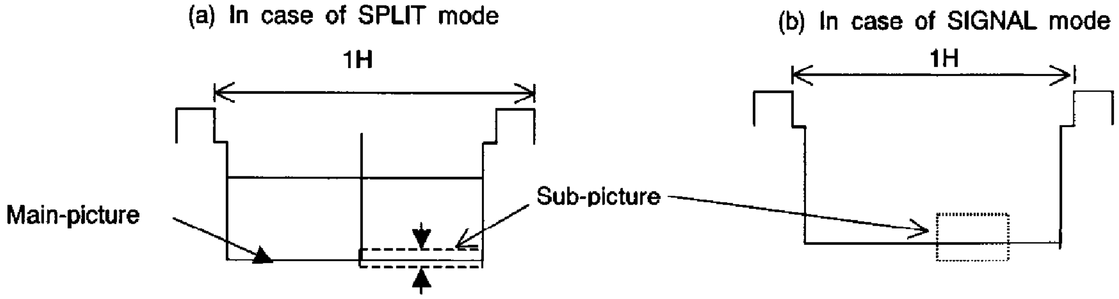

ADJUST MODE
SUB CNT **
V SIZE **
H SIZE **
EW PARA **
EW TRAP **
OSD ☐
AFC ☐
MEMORY INIT ☐
I2COPEN ☐
P MODE ADJ ☐
E2PROM edit ☐

Main Picture


Press "PIP" button and "PIP Mode" button
SPLIT
MAIN ANT A
SUB ANT A

Main Picture

Wave form of P852 (Green Cathode)


(a) In case of SPLIT mode
1H
Main-picture
Sub-picture
(b) In case of SIGNAL mode
1H

Adjustment specification : ±1V
Quality control specification : ±3V

(Sub-picture level compared with main-picture level.)
(Oscilloscope range:10V/5usec)

BACK TO ADJUSTMENTS

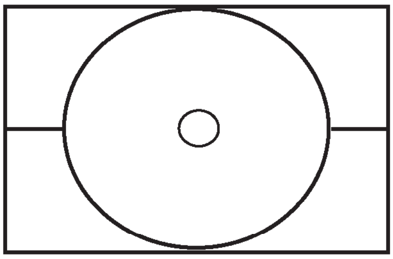
2.16 Horizontal position adjustment

Adjustment preparation

(1) The screen face of set should be turned to East or West.
(2) VIDEO control should be set to Factory Preset Condition.
(3) DIGITAL CONVERGENCE adjustment should be finished.

Adjustment procedure
NORMAL 16:9 STANDARD MODE

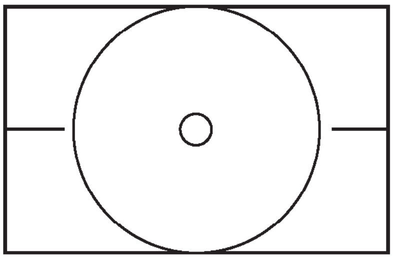
(1) Receive circle pattern.
(2) Picture Format is 16:9 Standard.
(3) Go to I²C Adj. mode by pressing INPUT and POWER button on control panel at the same time.
(4) Choose H. POSITION item using R/C THUMBSTICK ▲,▼.
(5) Adjust HORIZONTAL POSITION as follows, using R/C THUMBSTICK ◀,▶.



Spec: Balance Left/Right side display position.
H. size marker 1.0~2.0.

Adjustment procedure
1080i 16:9 Standard Mode

(1) Input 1080i (fH=33.75KHz) component circle pattern signal to component video terminal.
(2) Picture Format is 16:9 Standard.
(3) Go to I²C Adj. mode.
(4) Choose H. POSITION item using R/C THUMBSTICK ▲,▼.
(5) Adjust HORIZONTAL POSITION as follows, using R/C THUMBSTICK ◀,▶.



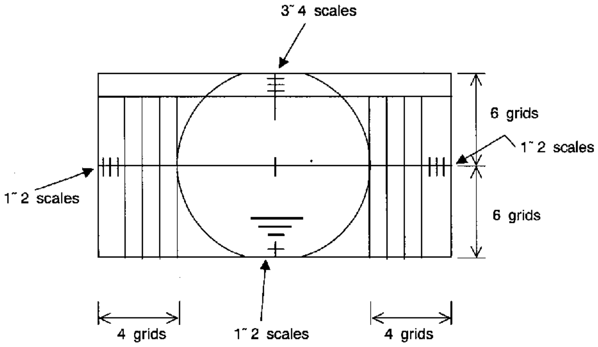
Spec: Balance Left/Right side display position.

2.17 Scanning area check

Checking condition

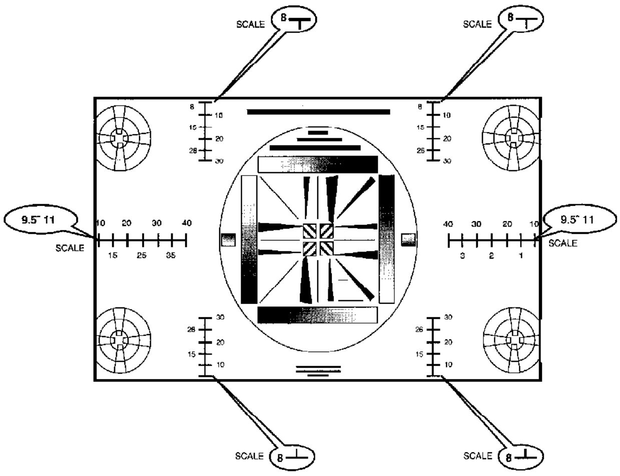
(1) Digital convergence adjustment should have been completed.
(2) Receive the circle pattern signal.
(3) Brightness/Contrast - standard condition
Contrast:max
Other controls:center position
(4) Check that the scanning area matches with the following drawing.

Receive 1080i circle pattern No. 59 of LT1611*, LT1608* of LEADER signal generator.



- LT1611 : Programmable Video Generator
- LT1608 : Video Encoder

Receive 1080i circle pattern of LT-449 (Leader)

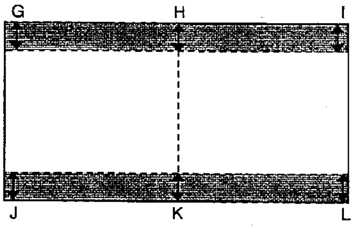


BACK TO ADJUSTMENTS

2.18 TOP & BOTTOM PANEL DISTORTION CHECK

Measuring Condition

(1) Measure it after 20 minutes or later of the picture appearance.
(2) Display NTSC.
Contrast: Max, Brightness: Center
(3) Press [PIP] key on remote controller to select “SPLIT” mode as shown below.
(4) Measure Top & Bottom panel width as shown.



SPLIT mode

Specification : Top & Bottom distortion ··· Value shown in the following table or less.
(Unit : mm)

Pincushion distortion	46"	51"	57"	65"	Remarks
G – H H – I	±1.5	±2.0	±2.0	±2.5	
J – K K – L	±1.5	±2.0	±2.0	±2.5	

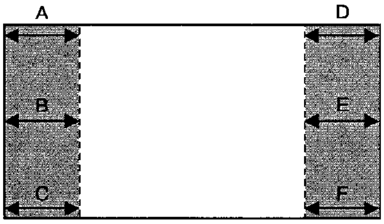
Trapezoidal distortion	46"	51"	57"	65"	Remarks
G – I	±1.0	±2.0	±1.5	±2.0	
J – L	±1.0	±2.0	±1.5	±2.0	

2.19 -SIDE PANEL DISTORTION AND TOP & BOTTOM PANEL DISTORTION CHECK

SIDE PANEL DISTORTION CHECK

Measuring Condition

(1) Measure it after 20 minutes or later of the picture appearance.
(2) Display NTSC Hitachi circle pattern signal, set Aspect to 4:3 standard mode.
Contrast: Max, Brightness: Center
(3) Measure side panel width as shown below A ~ F.



4:3 standard mode

Specification : Side panel distortion ··· Value shown in the following table or less.
(Unit : mm)

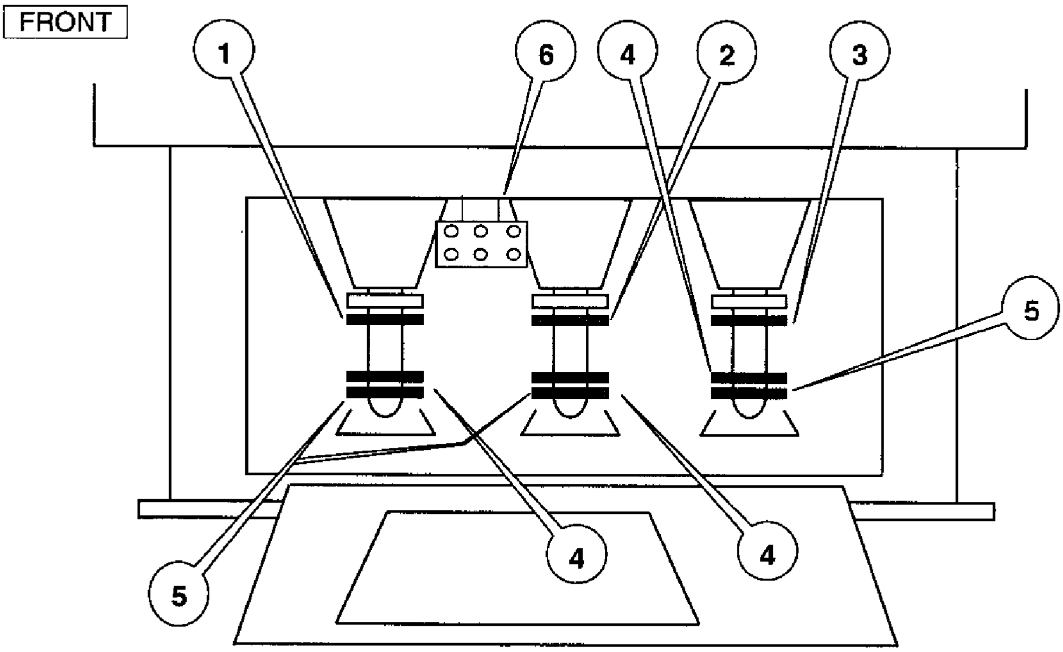
Pincushion distortion	46"	51"	57"	65"	Remarks
A – B B – C	±2.0	±2.5	±2.5	±3.0	
D – E E – F	±2.0	±2.5	±2.5	±3.0	

Trapezoidal distortion	46"	51"	57"	65"	Remarks
A C	±1.5	±2.0	±2.0	±2.5	
D – F	±1.5	±2.0	±2.0	±2.5	

NOTE: If any of the above is not within specification, re-adjust side pin distortion and trapezoid distortion page 36-37 and adjust convergence.

BACK TO ADJUSTMENTS

2.19.1. ADJUSTMENT POINT
CRT, cabinet locations

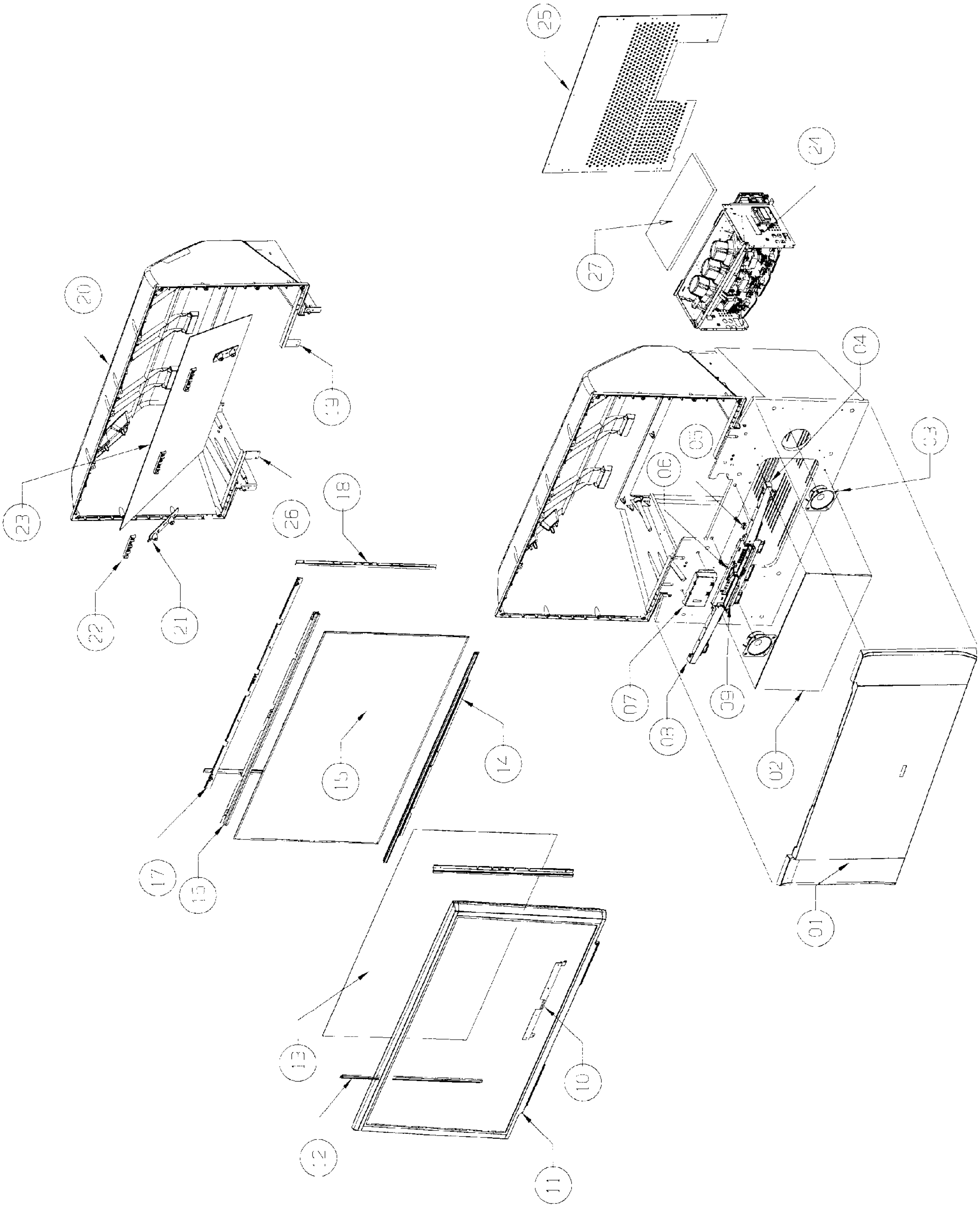


1. CENTERING MAGNET FOR RED PRT
2. CENTERING MAGNET FOR GREEN PRT
3. CENTERING MAGNET FOR BLUE PRT
4. 4-POLE MAGNET FOR BEAM FORM ADJUSTMENT
5. BEAM ALIGNMENT MAGNET
6. FOCUS PACK

BACK TO ADJUSTMENTS

EXPLODED VIEW

51F710 / 57F710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11

TABLE OF CONTENTS

EXPLODED VIEW

51F710 / 57F710

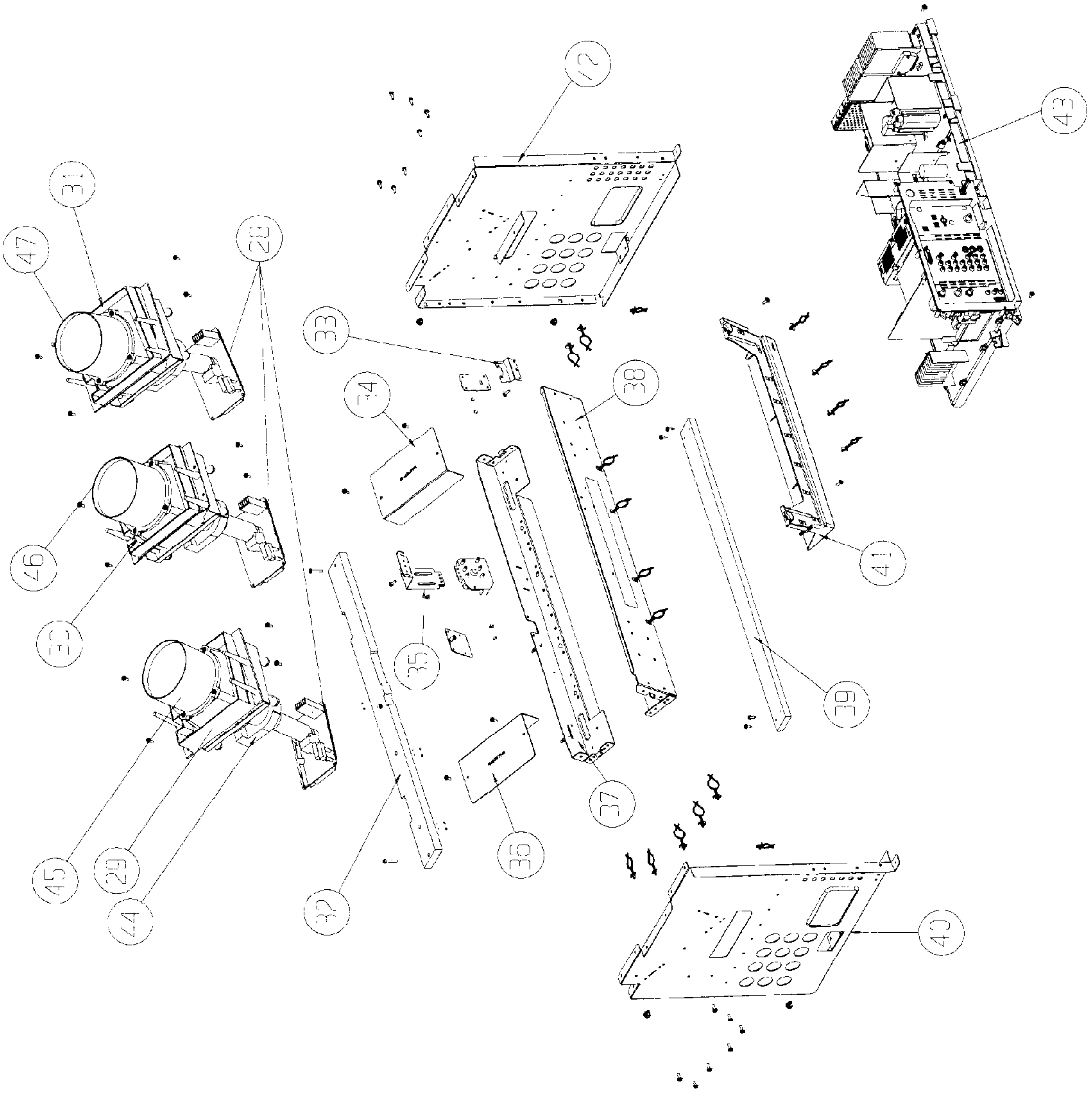
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TABLE OF CONTENTS

Model 51F710

No	Part No	Description	Qty.
1	PH34101	SPEAKER GRILLE ASSY 51F510	1
2	31020278	FRONT COVER 51/57F	1
3	GK01301	SP-12CM C120RB514-10	2
4	PH34123	DECO PANEL 51" (R) F	1
5	PH34232	IR LENS F/G	1
6	PH34186	CONTROL PANEL F	1
7	NJ09841	PWB COVER	1
8	PH34125	DECO PANEL 51" (L) F	1
9	PH34192	CONTROL DOOR_F	1
10	NA72183	METAL SCREEN SUPPORT F	1
CH 3 11	p. 38	SCREEN FRAME 51"	1
12	PH34051	SCREEN HOLDER 51" (SIDE)	2
13	KR03251	ULTRASHIELD HC 51W	1
14	PH35321	51" BOTTOM SCREEN HOLDER (REV)	1
15	KR03302	DP4X SCREEN ASSY 51W DN	1
16	PH34031	SCREEN HOLDER 51" (TOP)	1
17	NA72451	51" TOP SCREEN BRACKET	1
18	NJ20181	51" SIDE SCREEN HOLDER B	2
19	NA73894	51" L-BRACKET (RIGHT)	1
20	QD38061	BACK COVER 51"	1
21	NJ09156	SIDE MIRROR HOLDER L	1
21A	NJ09155	SIDE MIRROR HOLDER R	1
22	NJ09161	TOP MIRROR HOLDER	3
23	KS07995	'04 51" MODELS MIRROR GLASS	1
24	UE23351	51F710 CORE BLOCK ASSY	1
25	H512334	LOWER REAR B. DP4X	1
26	NA73893	51" L-BRACKET (LEFT)	1
27	33020117	BARRIER BOARD ASSY F	1
28	JT24502	DP45 CPT CONTROL PWB ASSY	1
29	UE23421	HSB-MAB 51 LENS CRT B. ASSY [R]	1
30	UE23422	HSB-MAB 51 LENS CRT B. ASSY [G]	1
31	UE23423	HSB-MAB 51 LENS CRT B. ASSY [B]	1
32	NM00941	CHASSIS SUPPORT 2002	1
33	NA57181	IR PWB FIX MTL DP2X	1

TABLE OF CONTENTS

34	NA57578	LC METAL 2002-57 SIDE	1
35	NA61121	FOCUS BOX FIX METAL 43(4:3) SECC20/20Et=1.2	1
36	NA57578	LC METAL 2002-57 SIDE	1
37	NA71022	LC METAL 2004-20-6 FRONT	1
38	NA71031	LC METAL 2004-20.6 REAR	1
39	NM00941	CHASSIS SUPPORT 2002	1
40	NA71041	SIDE METAL 2004-20.6 RIGHT	1
41	NJ06582	DRIPPING HOLDER DP4X	1
42	NA71042	SIDE METAL 2004-20.6 LEFT	1
43	UE23122	DP45 CHASSIS ASY	1
44	see page 35	DEFLECTION YOKE	3
45	KQ03081K	HSB LENS SASS RG	1
46	KQ03081K	HSB LENS SASS RG	1
47	KQ03082K	HSB LENS SASS B	1

NOTE : In part number showed on item 28, is included the following PWB assy, (control PWB, IR PWB and PRT PWB (R, G & B)).

CH 2

TABLE OF CONTENTS

Model 57F710

	No	Part No	Description	Qty.
	1	PH33952	SPEAKER GRILLE 57F510	1
	2	55010267	FRONT BOARD 2002	1
	3	GK01311	SP-16CM C160RB506-10	2
	4	PH34073	DECO PANEL 57" (R) F	1
	5	PH34232	IR LENS F/G	1
	6	PH34186	CONTROL PANEL F	1
	7	NJ09841	PWB COVER	1
	8	PH34075	DECO PANEL 57" (L) F	1
	9	PH34192	CONTROL DOOR_F	1
	10	NA72183	METAL SCREEN SUPPORT F	1
CH 3	11	p. 39	SCREEN FRAME 57"	1
	12	PH34052	SCREEN HOLDER 57" (SIDE)	2
	13	KR03255	ULTRASHIELD HC 57W	1
	14	PH35322	57" BOTTOM SCREEN HOLDER (REV)	1
	15	KR03306	DP4X SCREEN ASSY 57W DN	1
	16	PH34032	SCREEN HOLDER 57" (TOP)	1
	17	NA72452	57" TOP SCREEN BRACKET	1
	18	NJ20182	57" SIDE SCREEN HOLDER B	2
	19	NA73902	57" L-BRACKET (RIGHT)	1
	20	QD38051	BACK COVER 57"	1
	21	NJ09156	SIDE MIRROR HOLDER L	1
	21A	NJ09155	SIDE MIRROR HOLDER R	1
	22	NJ09161	TOP MIRROR HOLDER	5
	23	KS07993	'04 57" MODELS MIRROR GLASS	1
	24	UE23352	57F710 CORE BLOCK ASSY	1
	25	H512334	LOWER REAR B. DP4X	1
	26	NA73893	51" L-BRACKET (LEFT)	1
	27	33020117	BARRIER BOARD ASSY F	1
	28	JT24502	DP45CPT CONTROL PWB ASSY	1
	29	UE23424	HSB-MAB 57 LENS CRT B. ASSY [R]	1
	30	UE23425	HSB-MAB 57 LENS CRT B. ASSY [G]	1
	31	UE23426	HSB-MAB 57 LENS CRT B. ASSY [B]	1
	32	NM00941	CHASSIS SUPPORT 2002	1
	33	NA57181	IR PWB FIX MTL DP2X	1

TABLE OF CONTENTS

34	NA57578	LC METAL 2002-57 SIDE	1
35	NA61121	FOCUS BOX FIX METAL 43(4:3) SECC20/20Et=1.2	1
36	NA57578	LC METAL 2002-57 SIDE	1
37	NA71022	LC METAL 2004-20-6 FRONT	1
38	NA71031	LC METAL 2004-20.6 REAR	1
39	NM00941	CHASSIS SUPPORT 2002	1
40	NA71041	SIDE METAL 2004-20.6 RIGHT	1
41	NJ06582	DRIPPING HOLDER DP4X	1
42	NA71042	SIDE METAL 2004-20.6 LEFT	1
43	UE23122	DP45 CHASSIS ASY	1
44	see page 35	DEFLECTION YOKE	3
45	KQ03081K	HSB LENS SASS RG	1
46	KQ03081K	HSB LENS SASS RG	1
47	KQ03082K	HSB LENS SASS B	1

NOTE : In part number showed on item 28, is included the following PWB assy, (control PWB, IR PWB and PRT PWB (R, G & B)).

CH 2

TABLE OF CONTENTS

EXPLODED VIEW

65F710

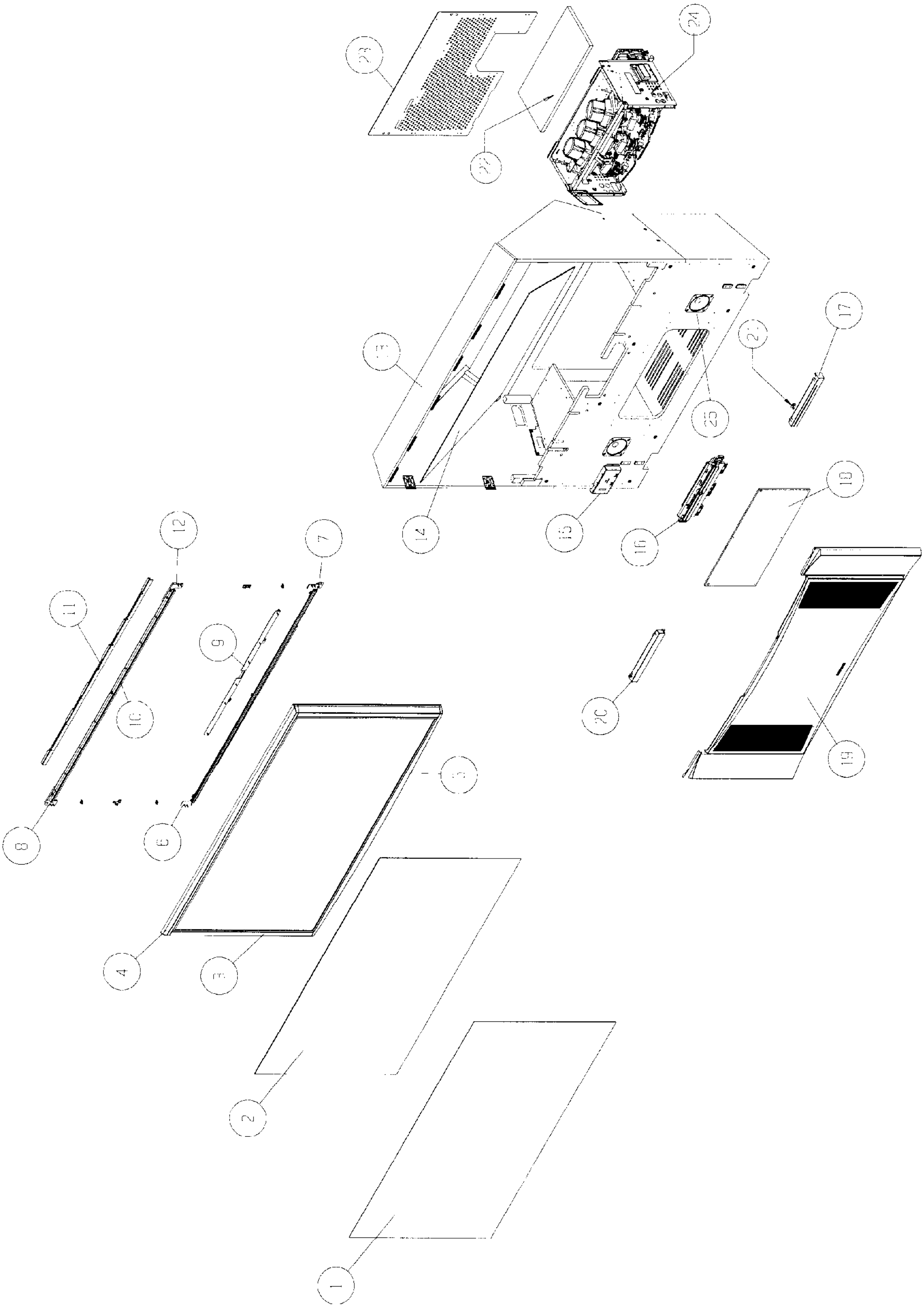
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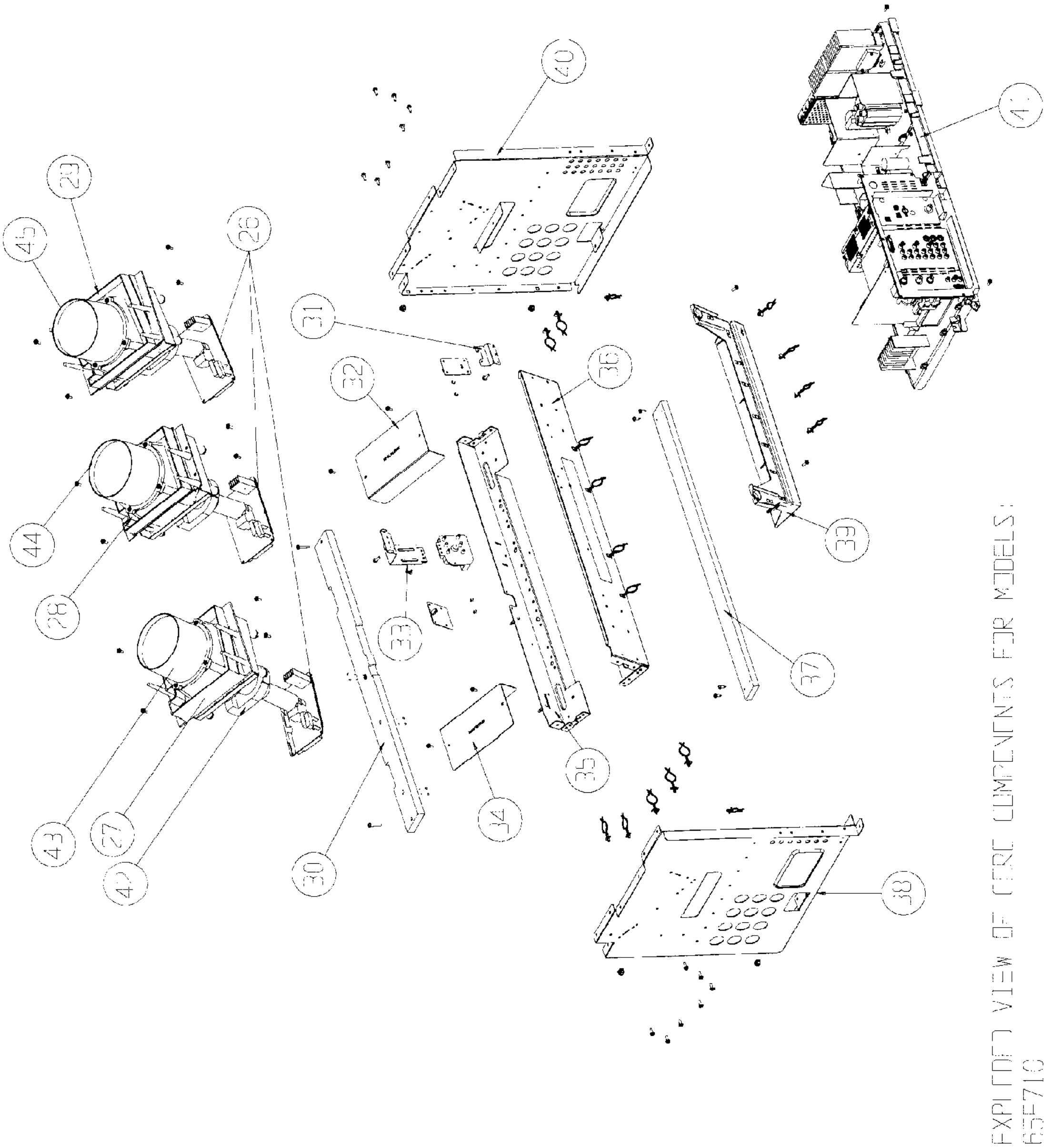
TABLE OF CONTENTS

EXPLODED VIEW

65F710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32
36
44
28
39
33
37
35
34
43
27
42
30
38
EXPLODED VIEW OF CERC COMPONENTS FOR MODELS:
65F710

TABLE OF CONTENTS

Model 65F710

	No	Part No	Description	Qty.
	1	KR03263	ULTRASHIELD HC 65W	1
	2	KR03307	DP4X SCREEN ASSY 65W	1
CH 3	3	p. 40	CREEN FRAME 65" (SIDE)	2
	4	QD38103	TOP FRAME PAINTED 65F	1
	5	QD38104	BOTTOM FRAME PAINTED 65F	1
	6	NA73771	65F BOTTOM CORNER METAL (L)	1
	7	NA73772	65F BOTTOM CORNER METAL (R)	1
	8	NA73761	65F TOP CORNER METAL (L)	1
	9	NA73841	65" BOTTOM SUPPORT	1
	10	QD38131	SCREEN HOLDER 65" (TOP)	1
	11	NA73781	65F TOP METAL SUPPORT	1
	12	NA73762	65F TOP CORNER METAL (R)	1
	13	QD39431	65F710 CABINET ASY	1
	14	KS07994	MIRROR GLASS 65" 2004	1
	15	NJ09841	PWB COVER	1
	16	PH34186	CONTROL PANEL F	1
	16A	PH34192	CONTROL DOOR_F VERSION	1
	17	PH34211	DECO PANEL 65F710 (R)	1
	18	55010267	FRONT BOARD 2002	1
	19	PH34151	SPEAKER GRILLE ASSY 65F710	1
	20	PH34212	DECO PANEL 65F710 (L)	1
	21	PH34232	IR LENS F/G	1
	22	33020117	BARRIER BOARD ASSY F	1
	23	H512334	LOWER REAR B. DP4X	1
	24	UE23353	577715 CORE BLOCK ASSY	1
	25	GK01311	SP-16CM C160RB506-10	2
	26	JT24502	DP45 CPT CONTROL PWB ASSY	1
	27	UE24271	D2XX-MAB LENS CRT B. ASSY (R)	1
	28	UE24272	D2XX-MAB LENS CRT B. ASSY (G)	1
	29	UE24273	D2XX-MAB LENS CRT B. ASSY (B)	1
	30	NM00941	CHASSIS SUPPORT 2002	1
	31	NA57181	IR PWB FIX MTL DP2X	1
	32	NA57578	LC METAL 2002-57 SIDE	1
	33	NA61121	FOCUS BOX FIX METAL 43(4:3) SECC20/20Et=1.2	1

TABLE OF CONTENTS

34	NA57578	LC METAL 2002-57 SIDE	1
35	NA71022	LC METAL 2004-20-6 FRONT	1
36	NA71031	LC METAL 2004-20.6 REAR	1
37	NM00941	CHASSIS SUPPORT 2002	1
38	NA71041	SIDE METAL 2004-20.6 RIGHT	1
39	NJ06582	DRIPPING HOLDER DP4X	1
40	NA71042	SIDE METAL 2004-20.6 LEFT	1
41	UE23122	DP45 CHASSIS ASY	1
42	see below	DEFLECTION YOKE	1
43	KQ02332	DELTA260 A/B ASSY	1
44	KQ02332	DELTA260 A/B ASSY	1
45	KQ02332	DELTA260 A/B ASSY	1

NOTE : In part number showed on item 26, is included the following PWB assy, (control PWB, IR PWB and PRT PWB (R, G & B)).

DEFLECTION YOKE PART NUMBERS

MODEL	SERIAL	PART NUMBER
51F710	V4H000000 and below	BY01664
51F710	V4H000001 and above	BY01555
57F710	V4H000000 and below	BY01664
57F710	V4H000001 and above	BY01555
65F710	V4H000000 and below	BY01664
65F710	V4H000001 and above	BY01555

CH 2

TABLE OF CONTENTS

HITACHI
Inspire the Next

DISASSEMBLY / ASSEMBLY INSTRUCTIONS FOR HITACHI 57 INCH SPLIT PROJECTION TELEVISION

IMPORTANT POINTS:

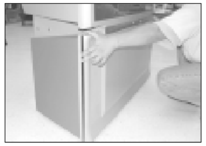
(a) Do not attempt to perform this work by yourself.
(b) Request an installation specialist to install this unit.
(c) HITACHI assumes no responsibility or liability for injury/damage as a result of consumer installation and handling. Be advised that improper consumer installation/handling is not covered by manufacturer's warranty.
(d) This Projection Television weighs over 206.3 pounds and has many sensitive components.

CAUTION: DISCONNECT UNIT FROM POWER SOURCE BEFORE DISASSEMBLY / ASSEMBLY

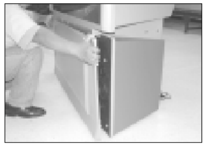
1 - SEPARATION PROCEDURE (Note: read all instructions and understand how to properly and safely disassemble and assemble unit)

STEP 1 Before disassembling this projection TV set, you must first remove the speaker grille by grabbing the sides and pulling left and right side see (a)(b). Remove the front decoration panels by unscrewing the 2 screws from each panel, see (c), then remove from the original position, see (d)(e).

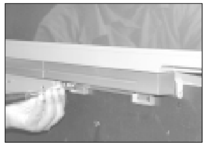
(a)



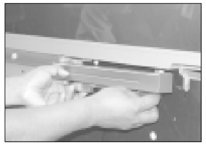
(b)



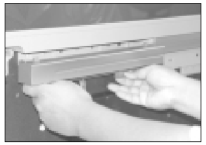
(c)



(d)

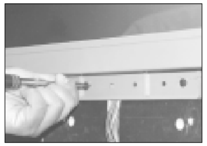


(e)

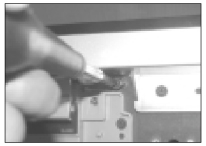


STEP 2 Remove the 8 screws that hold the screen frame to the cabinet on the front side.

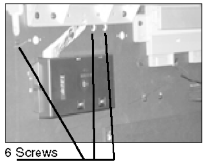
(a)



(b)

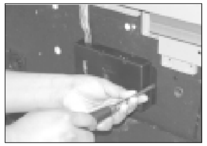


STEP 3 Remove the 6 screws that hold the back cover to the cabinet on the front side.

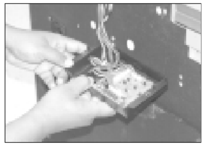


STEP 4 Remove the sensor box by unscrewing the 2 screws located on both sides of the sensor box, see (a). Rotate the sensor box and there are 4 low voltage connectors located on the sensor board, see (b). Disconnect the connector with the brown wires (PDSE), see (c) and (d). (Make sure to push the center lock on the connector at the unplug time.)

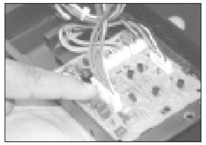
(a)



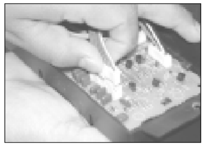
(b)



(c)

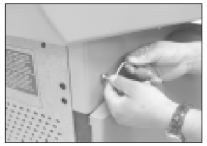


(d)

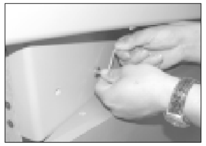


STEP 5 Remove the joint connector bolts from each side of the back cover using the allen wrench that is provided inside of the instruction bag, see (a) and (b).

(a)

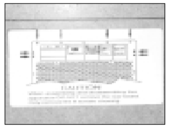


(b)

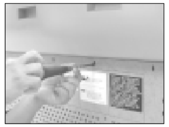


STEP 6 Remove from the back side of the TV set only the top 4 screws of the lower rear cover, see (b), as shown by the arrows on the rear cabinet label, see (a). Do not remove the rear cover board. Remove the (4) four side screws that hold the back cover to the cabinet, see (c) as shown on the label (a).

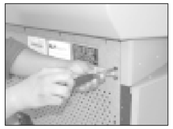
(a)



(b)

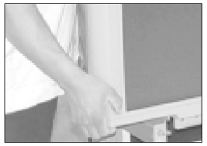


(c)

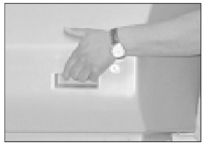


STEP 7 **Caution:** When the TV is separated, the top portion weights 45 lbs. This task should be done by two persons when separating this TV.
This assembly contains fragile parts, such as glass and the viewing screen. Avoid any type of impact that could cause breakage of these components.
Remove top portion by grabbing the bottom corner of frame and the back cover, see (a)(b). Lift upwards, see (c)(d), gently place the top portion on the the floor, see (e).

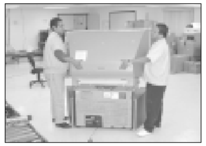
(a)



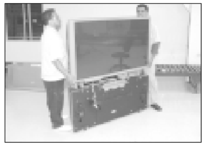
(b)



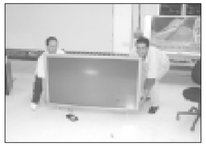
(c)



(d)



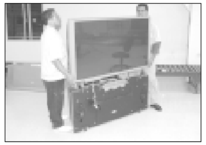
(e)



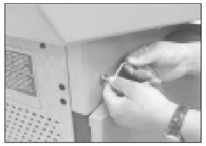
THESE INSTRUCTIONS MUST REMAIN ON UNIT

2 - RE-ASSEMBLY PROCEDURE

STEP 8 To re-assemble the set, lift the top portion and align onto the bottom cabinet. Gently lower the top portion until it sits flush on the bottom.

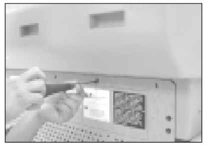


STEP 9 Re-install the joint connector bolts (4 pcs.) that were removed in step 5 of the disassembly.

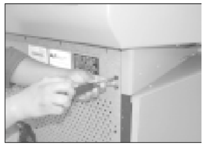


STEP 10 Re-install the top (4) four screws into the lower rear cover, see (a). Re-install the (4) four side screws that hold the back cover to the cabinet, see (b).

(a)

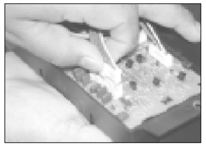


(b)

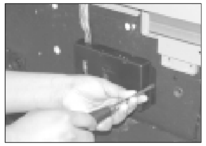


STEP 11 Re-connect the sensor connector to the sensor board, see (a). Re-install the sensor box, see (b).

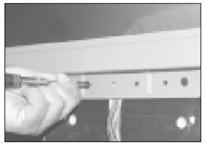
(a)



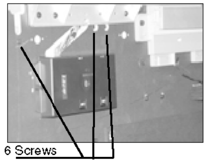
(b)



STEP 12 Re-install the 8 screws that hold the frame to the cabinet on the front side of the TV.

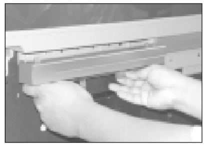


STEP 13 Re-install the 6 screws that hold the back cover to the cabinet on the front side of the TV.

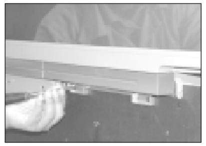


STEP 14 Re-install both of the front decoration panels, see (a) and (b).. Re-install the speaker grille, aligning it with the bottom cabinet, see (c). This completes the Disassembly and Assembly instructions.

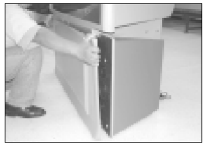
(a)



(b)



(c)



HITACHI
Inspire the Next

DISASSEMBLY / ASSEMBLY INSTRUCTIONS FOR HITACHI 65 INCH SPLIT PROJECTION TELEVISION

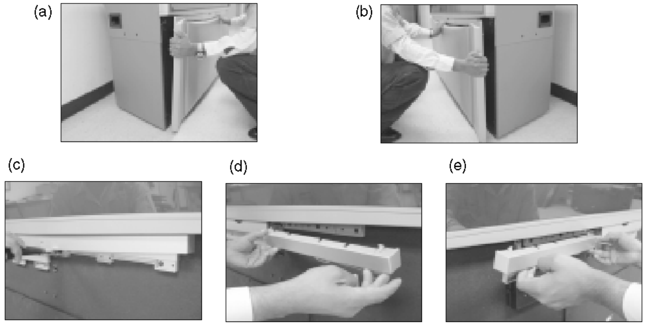
IMPORTANT POINTS:

- (a) Do not attempt to perform this work by yourself.
- (b) Request an installation specialist to install this unit.
- (c) HITACHI assumes no responsibility or liability for injury/damage as a result of consumer installation and handling. Be advised that improper consumer installation/handling is not covered by manufacturer's warranty.
- (d) This Projection Television weighs over 272.8 pounds and has many sensitive components.

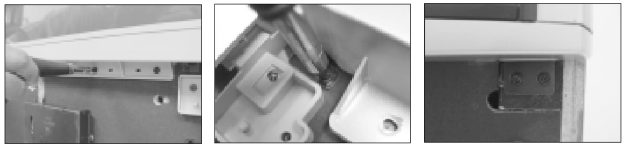
CAUTION: DISCONNECT UNIT FROM POWER SOURCE BEFORE DISASSEMBLY / ASSEMBLY

1 - SEPARATION PROCEDURE (Note: read all instructions and understand how to properly and safely disassemble and assemble unit)

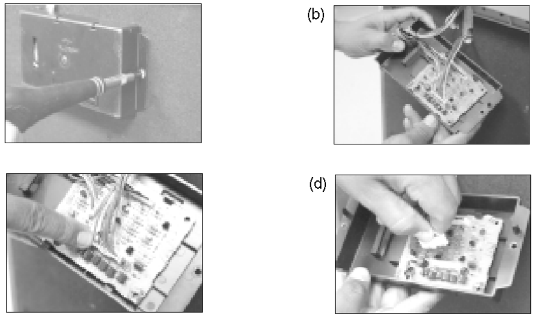
STEP 1 Before disassembling this projection TV set, you must first remove the speaker grille by grabbing the sides and pulling left and right side see (a)(b). Remove the front decoration panels by unscrewing the 2 screws from each panel, see (c), then remove from the original position, see (d)(e).


(a) (b) (c) (d) (e)

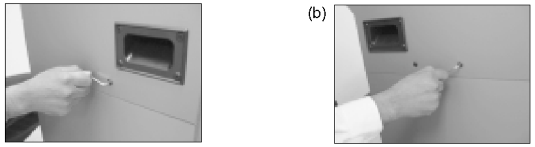
STEP 2 Remove the 8 screws that hold the screen frame to the cabinet on the front side. DO NOT remove the right and left edge screen frame screws (c).


(a) (b) (c)

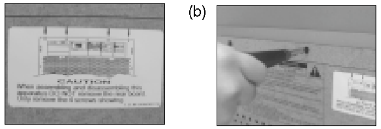
STEP 3 Remove the sensor box by unscrewing the 2 screws located on both sides of the sensor box, see (a). Rotate the sensor box and there are 4 low voltage connectors located on the sensor board, see (b). Disconnect wires (PDSE), see (c) and (d). (Make sure to push the center lock on the connector at the unplug time.)


(a) (b) (c) (d)

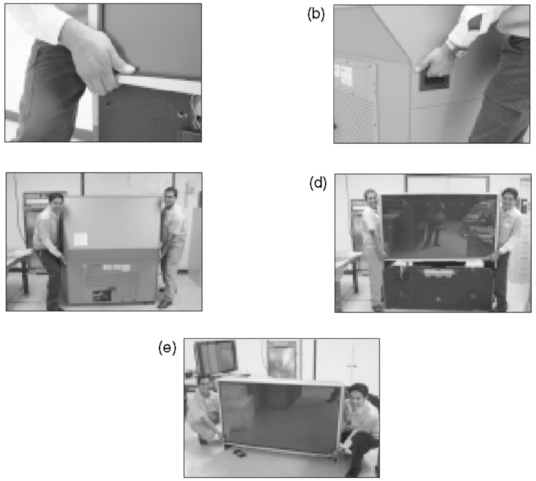
STEP 4 Remove the joint connector bolts from each side of the TV set using the allen wrench that is provided inside of the instruction bag, see (a) and (b).


(a) (b)

STEP 5 Remove from the back side of the TV set only the top 4 screws of the lower rear cover, see (b), as shown by the arrows on the rear cabinet label, see (a). Do not remove the rear cover board.


(a) (b)

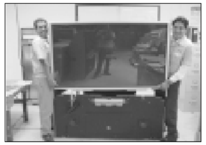
STEP 6 **Caution:** When the TV is separated, the top portion weighs 112 lbs. This task should be done by two persons to carry top portion when separating this TV.
This assembly contains fragile parts, such as glass and the viewing screen. Avoid any type of impact that could cause breakage of these components.
Remove top portion by grabbing the bottom corner of frame and the side of the TV, see (a)(b). Lift upwards, see (c)(d), gently place the top portion on the the floor, see (e).


(a) (b) (c) (d) (e)

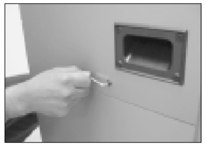
THESE INSTRUCTIONS MUST REMAIN ON UNIT

2 - RE-ASSEMBLY PROCEDURE

STEP 7 To re-assemble the set, lift the top portion and align onto the bottom cabinet. Gently lower the top portion until it sits flush on the bottom.



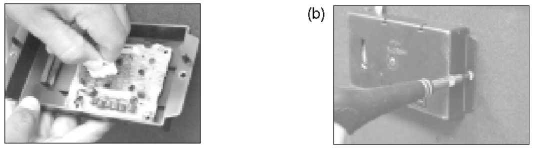
STEP 8 Re-install the joint connector bolts (4 pcs.) that were removed in step 4 of the disassembly.



STEP 9 Re-install the top (4) four screws into the lower rear cover, see (a).

(a)

STEP 10 Re-connect the sensor connector to the sensor board, see (a).
Re-install the sensor box, see (b).


(a) (b)

STEP 11 Re-install the 8 screws that hold the frame to the cabinet on the front side of the TV.

STEP 12 Re-install both of the front decoration panels, see (a) and (b) Re-install the speaker grille, aligning it with the bottom cabinet, see (c). This completes the Disassembly and Assembly instructions.

(a) (b) (c)

51F710	**51 INCH PTV**
CS00627	FLEX CONTROL (HC5627)
CS00834	DCU (HC2614)
HA01312	POWER UNIT DP4X-DM_24W
HL02071	REMOTE CONTROL UNIT
HP00773	ANTENNA SWITCH BOX YAA41-0171G
JT24472	DP45 SIGNAL PWB
JT24482	DP45 POWER DEFLECTION PWB
JT24492	DP45 HDMI PWB
JT24502	DP45 CPT / CONTROL PWB
JT24512	DP45 CONVERGENCE OUTPUT PWB
JT24522	DP45 TUNER PWB
KR03251	ULTRASHIELD HC 51W
KR03302	DP43 SCREEN ASSY 51
KS07995	'04 51" MODELS MIRROR GLASS
NT04071	FRAME ASSY 51F510
UE23122	DP45 CHASSIS ASSY
UE23142	DP45 SIGNAL BOARD ASSY
UE23152	DP45 POWER DEFLECTION BOARD ASSY
UE23411	DIGITAL MODULE (HCY501)
UE23421	DP43 51 PRT ASSY (R)
UE23422	DP43 51 PRT ASSY (G)
UE23423	DP43 51 PRT ASSY (B)
X480282	SUB DEFLECTION PWB
61010150	CASTER WHEEL

SIGNAL BOARD ASSY includes Signal, Tuner, HDMI, and Digital Module
POWER DEFLECTION BOARD ASSY includes Power Deflection PWB and Convergence Output PWB

57F710	**57 INCH PTV**
CS00627	FLEX CONTROL (HC5627)
CS00834	DCU (HC2614)
HA01312	POWER UNIT DP4X-DM_24W
HL02071	REMOTE CONTROL UNIT
HP00773	ANTENNA SWITCH BOX YAA41-0171G
JT24472	DP45 SIGNAL PWB
JT24482	DP45 POWER DEFLECTION PWB
JT24492	DP45 HDMI PWB
JT24502	DP45 CPT / CONTROL PWB
JT24512	DP45 CONVERGENCE OUTPUT PWB
JT24522	DP45 TUNER PWB
KR03255	ULTRASHIELD HC 57W
KR03306	SCREEN ASSY NO SHIELD
KS07993	'04 57" MODELS MIRROR GLASS
NT04081	FRAME ASSY 57F510
UE23122	DP45 CHASSIS ASSY
UE23142	DP45 SIGNAL BOARD ASSY
UE23152	DP45 POWER DEFLECTIONS BOARD ASSY
UE23411	DIGITAL MODULE (HCY501)
UE23424	PRT ASSY (R)
UE23425	PRT ASSY (G)
UE23426	PRT ASSY (B)
X480282	SUB DEFLECTION PWB
61010150	CASTER WHEEL

SIGNAL BOARD ASSY includes Signal, Tuner, HDMI, and Digital Module
POWER DEFLECTION BOARD ASSY includes Power Deflection PWB and Convergence Output PWB

65F710	**65 INCH PTV**
CS00627	FLEX CONTROL (HC5627)
CS00834	DCU (HC2614)
HA01313	POWER UNIT DP4X-DM_24W
HL02071	REMOTE CONTROL UNIT
HP00773	ANTENNA SWITCH BOX YAA41-0171G
JT24472	DP45 SIGNAL PWB
JT24482	DP45 POWER DEFLECTION PWB
JT24492	DP45 HDMI PWB
JT24502	DP45 CPT / CONTROL PWB
JT24512	DP45 CONVERGENCE OUTPUT PWB
JT24522	DP45 TUNER PWB
KR03263	ULTRASHIELD HC 65W
KR03307	DP45 SCREEN ASSY 65
KS07994	MIRROR GLASS 65" 2004
NT04661	FRAME ASSY 65F710
UE23122	DP45 CHASSIS ASSY
UE23142	DP45 SIGNAL BOARD ASSY
UE23152	DP45 POWER DEFLECTION BOARD ASSY
UE23411	DIGITAL MODULE (HCY501)
UE24271	DP45 65 PRT ASSY (R)
UE24272	DP45 65 PRT ASSY (G)
UE24273	DP45 65 PRT ASSY (B)
X480282	SUB DEFLECTION PWB
61010151	CASTORS FOR 65"

SIGNAL BOARD ASSY includes Signal, Tuner, HDMI, and Digital Module
POWER DEFLECTION BOARD ASSY includes Power Deflection PWB and Convergence Output PWB

HITACHI

57S715	**57 INCH PTV**
CS00627	FLEX CONVERTER (HC5627)
CS00831	DCU (HC2611)
HA01311	POWER UNIT DP4X-DM_40W
HL02062	REMOTE CONTROL UNIT CLU-3842WL
HP00773	ANTENNA SWITCH BOX
JT24471	SIGNAL PWB
JT24481	POWER DEFLECTION PWB
JT24491	HDMI PWB
JT24501	CPT / CONTROL PWB
JT24511	CONVERGENCE OUTPUT PWB
JT24521	TUNER PWB
KR03143	SCREEN ASSY 57
KR03265	ULTRASHIELD
KS07993	57" MODELS MIRROR GLASS
xxxxxxxxx	CHASSIS ASSY
UE23141	SIGNAL BOARD ASSY
UE23151	POWER DEFLECTION BOARD ASSY
UE23411	DIGITAL MODULE (HCY501)
X480282	SUB DEFLECTION PWB
61010150	CASTER WHEEL

SIGNAL BOARD ASSY includes Signal, HDMI, Tuner, and Digital Module
POWER DEFLECTION BOARD ASSY includes Power Deflection PWB and Convergence Output PWB

The 57" PRT assemblies have been changed mid-production: The difference is the mounting bracket.

Serial Number V1A00001 - V5E009557
Use the following:

UE23394	PRT ASSY (R)
UE23395	PRT ASSY (G)
UE23396	PRT ASSY (B)

Serial Number V5E009557 - V9M999999
Use the following:

UE23394B	PRT ASSY (R)
UE23395B	PRT ASSY (G)
UE23396B	PRT ASSY (B)

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